AC Line Filters

Common Mode SCF19XV, SCR19XV & SCT19XV Coils, Automotive Grade

Overview

The KEMET SCF19XV, SCR19XV & SCT19XV coils are common mode chokes with a wide variety of characteristics for automotive and harsh environment industrial application. These toroidal coils are designed with nanocrystalline metal and Mn-Zn Ferrite cores and are useful in various noise countermeasure fields.

Applications

- On board charger for EV/PHEV
- Wireless charging systems with 85 kHz
- Medium power drives for steering, air conditioning and mild hybrid 48 V systems
- High voltage automotive and harsh environment industrial EMI filtering

Benefits

- Nanocrystalline metal core for SCF19XV
- Mn-Zn Ferrite S15H for SCR19XV
- Mn-Zn Ferrite 7HT for SCT19XV
- High rated voltage up to 1,000 V AC/DC
- Operating temperature range from -40°C to +150°C (SCF19XV & SCT19XV)
- Operating temperature range from -40°C to +120°C (SCR19XV)
- Ultra-high inductance for SCF19XV
- Ultra-high permeability for SCR19XV
- UL 94 V–0 flame retardant rated base and cap
- AEC-Q200 qualified

SC19XV-JV

SC19XV-JH

Part Number System

SC	F	19X	V	080-		1R0	A	011	JV
Series	Core material Code	"Dimension Code (See Dimensions)"	Automotive Grade	"Rated Current (A)"	Phase	"Wire Diameter (mm)"	Windings	Number of Turns	Terminal Base Type
SC	"F = Nanocrystal core R = Mn-Zn Ferrite core S15H T = Mn-Zn Ferrite core 7HT"	19X	V = AEC-Q200 qualified	"xxx- = xx.x A Examples: 080 = 8.0 A 200 = 20.0 A"	Blank = Single-phase	"R = Decimal point Examples: 1R0 = 1.0 mm 2R4 = 2.4 mm"	A = Single	"00x = x turns 0xx = xx turns Examples: 005 = 5 turns 011 = 11 turns"	"JV = Vertical type JH = Horizontal type"

Magnetic Permeability of Ferrite Material

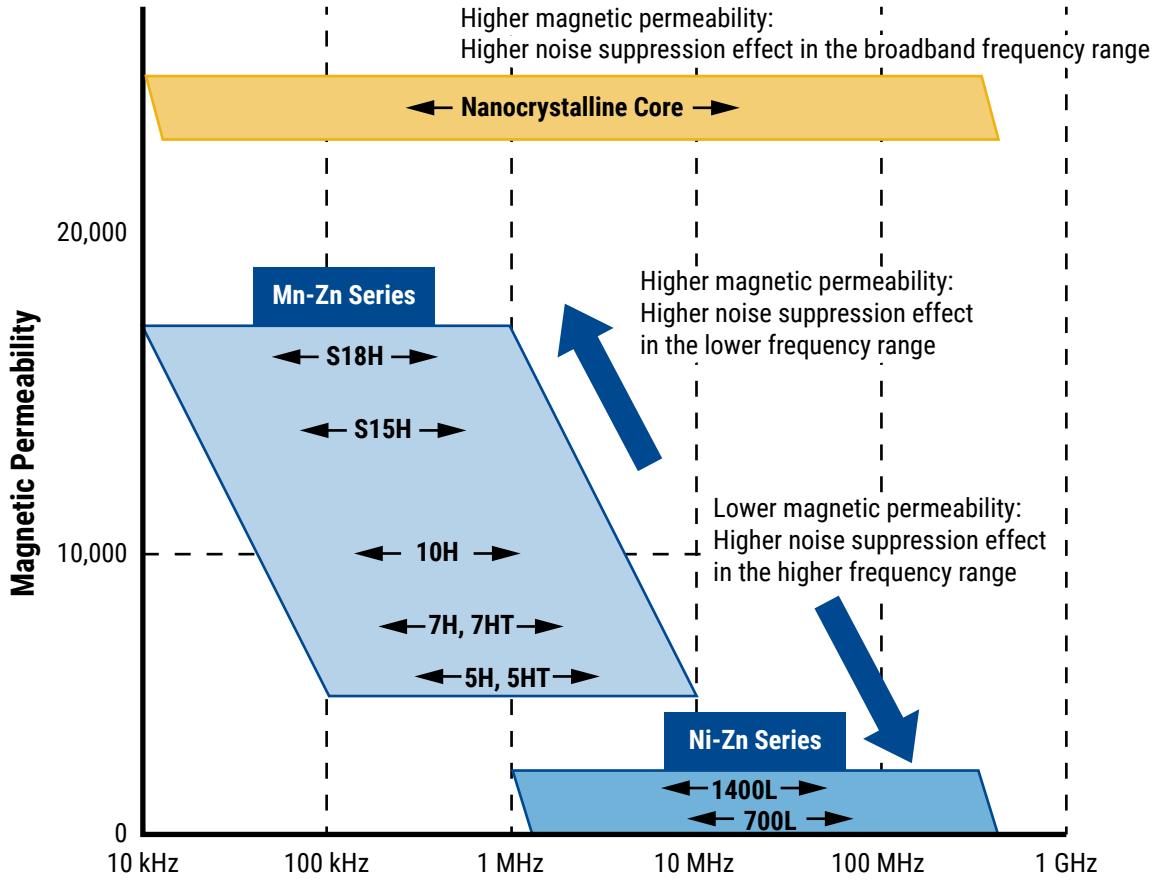
In order to achieve efficient noise reduction, it is important to select the material according to the target frequency band. Depending on its magnetic permeability, a particular ferrite material or metal material will be effective in a certain frequency band. A schematic representation of the relationship between the magnetic permeability of each material and the corresponding effective band range is shown in Figure 1.

Materials with higher magnetic permeability are effective in the lower frequency range, while those with lower magnetic permeability are effective in the higher frequency range. Thus, Mn-Zn products are mainly used for reducing conduction noise, while Ni-Zn products are commonly used for radiation noise countermeasures. Metal materials, however, are effective throughout the broadband frequency range, in low as well as high frequencies.

The effective frequency range varies depending on core shape, size, and number of windings. This frequency dependence of the magnetic permeability as shown in the figure serves for reference purposes only. It should be tested on the actual device to determine its effectiveness.

S18H, S15H, 10H, 7H, 7HT, 5H, 5HT, 1400L, and 700L are KEMET's proprietary ferrite material names. Other materials are available upon request.

Figure 1 - Relationship between the magnetic permeability of each material and its effective frequency range



Dimensions – Millimeters

Figure 1

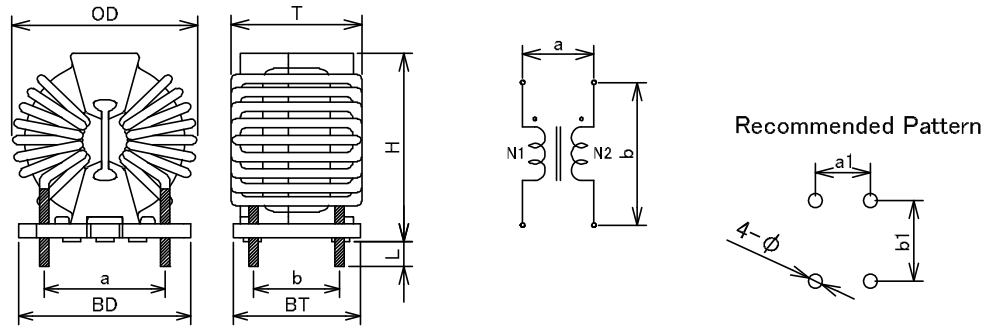
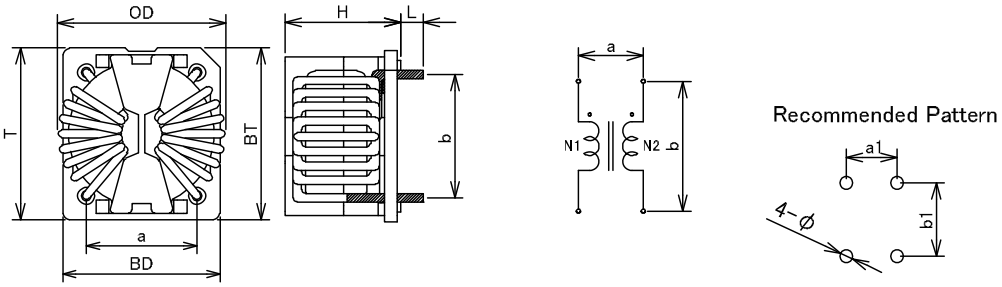


Figure 2



Part Type	Dimensions (mm)				Base Dimensions[2]		Pin Pitch[3]		Recommended Hole Pattern[4]			Figure
	OD (Maximum)	T (Maximum)	H [1]	L	BD	BT	a	b	a1	b1	φ	
SCF19XV-080-1R0A011JV	27.0	18.4	26.50 +1.0/-0.6	3.50 ±0.5	24.20 ±0.5	17.85 ±0.5	17.0 ±0.5	12.0 ±0.5	17.0	12.0	1.4	Fig. 1
SCF19XV-100-1R1A009JV	27.0	18.4	26.50 +1.0/-0.6	3.50 ±0.5	24.20 ±0.5	17.85 ±0.5	17.0 ±0.5	12.0 ±0.5	17.0	12.0	1.5	Fig. 1
SCF19XV-120-1R2A007JV	27.0	18.4	26.50 +1.0/-0.6	3.50 ±0.5	24.20 ±0.5	17.85 ±0.5	17.0 ±0.5	12.0 ±0.5	17.0	12.0	1.6	Fig. 1
SCF19XV-150-1R3A006JV	27.0	18.4	26.50 +1.0/-0.6	3.50 ±0.5	24.20 ±0.5	17.85 ±0.5	17.0 ±0.5	12.0 ±0.5	17.0	12.0	1.7	Fig. 1
SCF19XV-190-1R5A005JV	28.0	18.4	26.50 +1.0/-0.6	3.50 ±0.5	24.20 ±0.5	17.85 ±0.5	17.0 ±0.5	12.0 ±0.5	17.0	12.0	2.0	Fig. 1
SCF19XV-220-1R6A004JV	28.0	18.4	26.50 +1.0/-0.6	3.50 ±0.5	24.20 ±0.5	17.85 ±0.5	17.0 ±0.5	12.0 ±0.5	17.0	12.0	2.1	Fig. 1
SCF19XV-300-1R9A003JV	28.0	18.4	26.50 +1.0/-0.6	3.50 ±0.5	24.20 ±0.5	17.85 ±0.5	17.0 ±0.5	12.0 ±0.5	17.0	12.0	2.5	Fig. 1
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[1] We do not inspect the lower limit dimension. (design guarantee)
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Dimensions – Millimeters cont.

Part Type	Dimensions (mm)				Base Dimensions[2]		Pin Pitch[3]		Recommended Hole Pattern[4]			Figure
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SCF19XV-080-1R0A011JH	27.0	27.0	17.90 +1.0/-0.6	3.50 ±0.5	24.20 ±0.5	26.45 ±0.5	17.0 ±0.5	19.0 ±0.5	17.0	19.0	1.4	Fig. 2
SCF19XV-100-1R1A009JH	27.0	27.0	17.90 +1.0/-0.6	3.50 ±0.5	24.20 ±0.5	26.45 ±0.5	17.0 ±0.5	19.0 ±0.5	17.0	19.0	1.5	Fig. 2
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[1] We do not inspect the lower limit dimension. (design guarantee)
[2] We do not inspect the terminal base dimension. (design guarantee)
[3] Inspection by using pin-pitch gauge.
[4] Implementation conditions, please confirm that there is no pre-problem.

Environmental Compliance

All KEMET AC line filters are RoHS Compliant.

RoHS

Performance Characteristics

Item	Performance Characteristics
Rated Voltage	1,000 VAC/VDC
Withstanding Voltage	2,400 VAC (2 seconds, between lines)
Insulation Resistance	> 100 MΩ at 1,000 VDC (between lines)
Rated Current Range	8 – 30 A
Rated Inductance Range	0.110 - 1.500 mH +50%, -30% for SCF19XV type 0.056 - 0.750 mH ±35% for SCR19XV type 0.033 - 0.450 mH ±30% for SCT19XV type
Inductance Measurement Condition	100 kHz
Operating Temperature Range	-40°C to +150°C (include self temperature rise) for SCF19XV & SCT19XV type -40°C to +120°C (include self temperature rise) for SCR19XV type

Table 1 – Ratings & Part Number Reference

Part Number	Rated Voltage AC/DC (V)	Rated Current (A)	Inductance 100kHz (mH)	DC Resistance/ Line (mΩ) ±13%	Temperature Rise (K) Reference	Wire Diameter (mm)	Weight (g) Approximate
SCF19XV-080-1R0A011JV	1,000	8	1.500 +50%, -30%	8.700	45	1.0	16.3
SCF19XV-100-1R1A009JV	1,000	10	1.000 +50%, -30%	6.030	40	1.1	16.3
SCF19XV-120-1R2A007JV	1,000	12	0.600 +50%, -30%	3.990	40	1.2	16.2
SCF19XV-150-1R3A006JV	1,000	15	0.440 +50%, -30%	2.910	45	1.3	16.2
SCF19XV-190-1R5A005JV	1,000	19	0.300 +50%, -30%	1.890	45	1.5	17.0
SCF19XV-220-1R6A004JV	1,000	22	0.200 +50%, -30%	1.380	40	1.6	16.9
SCF19XV-300-1R9A003JV	1,000	30	0.110 +50%, -30%	0.747	45	1.9	17.4
SCR19XV-080-1R0A011JV	1,000	8	0.750 ±35%	8.700	45	1.0	15.9
SCR19XV-100-1R1A009JV	1,000	10	0.500 ±35%	6.030	40	1.1	16.1
SCR19XV-120-1R2A007JV	1,000	12	0.300 ±35%	3.990	40	1.2	15.8
SCR19XV-150-1R3A006JV	1,000	15	0.220 ±35%	2.910	45	1.3	15.8
SCR19XV-190-1R5A005JV	1,000	19	0.160 ±35%	1.890	45	1.5	16.6
SCR19XV-220-1R6A004JV	1,000	22	0.100 ±35%	1.380	40	1.6	16.1
SCR19XV-300-1R9A003JV	1,000	30	0.056 ±35%	0.747	45	1.9	16.8
SCT19XV-080-1R0A011JV	1,000	8	0.450 ±30%	8.700	45	1.0	16.1
SCT19XV-100-1R1A009JV	1,000	10	0.300 ±30%	6.030	40	1.1	16.1
SCT19XV-120-1R2A007JV	1,000	12	0.180 ±30%	3.990	40	1.2	15.6
SCT19XV-150-1R3A006JV	1,000	15	0.134 ±30%	2.910	45	1.3	15.7
SCT19XV-190-1R5A005JV	1,000	19	0.093 ±30%	1.890	45	1.5	16.6
SCT19XV-220-1R6A004JV	1,000	22	0.060 ±30%	1.380	40	1.6	16.1
SCT19XV-300-1R9A003JV	1,000	30	0.033 ±30%	0.747	45	1.9	16.8
SCF19XV-080-1R0A011JH	1,000	8	1.500 +50%, -30%	8.980	45	1.0	17.2
SCF19XV-100-1R1A009JH	1,000	10	1.000 +50%, -30%	6.230	40	1.1	16.8
SCF19XV-120-1R2A007JH	1,000	12	0.600 +50%, -30%	4.190	40	1.2	16.9
SCF19XV-150-1R3A006JH	1,000	15	0.440 +50%, -30%	3.010	45	1.3	16.8
SCF19XV-190-1R5A005JH	1,000	19	0.300 +50%, -30%	1.950	45	1.5	17.8
SCF19XV-220-1R6A004JH	1,000	22	0.200 +50%, -30%	1.430	40	1.6	17.1
SCF19XV-300-1R9A003JH	1,000	30	0.110 +50%, -30%	0.767	45	1.9	18.5
Part Number	**Rated Voltage AC/DC (V)**	**Rated Current (A)**	**Inductance 100kHz (mH)**	**DC Resistance/Line (mΩ) ±13%**	**Temperature Rise (K) Reference**	**Wire Diameter (mm)**	**Weight (g) Approximate**

Table 1 – Ratings & Part Number Reference cont.

Part Number	Rated Voltage AC/DC (V)	Rated Current (A)	Inductance 100kHz (mH)	DC Resistance/ Line (mΩ) ±13%	Temperature Rise (K) Reference	Wire Diameter (mm)	Weight (g) Approximate
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SCR19XV-100-1R1A009JH	1,000	10	0.500 ±35%	6.230	40	1.1	16.6
SCR19XV-120-1R2A007JH	1,000	12	0.300 ±35%	4.190	40	1.2	16.3
SCR19XV-150-1R3A006JH	1,000	15	0.220 ±35%	3.010	45	1.3	16.2
SCR19XV-190-1R5A005JH	1,000	19	0.160 ±35%	1.950	45	1.5	17.1
SCR19XV-220-1R6A004JH	1,000	22	0.100 ±35%	1.430	40	1.6	16.7
SCR19XV-300-1R9A003JH	1,000	30	0.056 ±35%	0.767	45	1.9	17.6
SCT19XV-080-1R0A011JH	1,000	8	0.450 ±30%	8.980	45	1.0	16.4
SCT19XV-100-1R1A009JH	1,000	10	0.300 ±30%	6.230	40	1.1	16.7
SCT19XV-120-1R2A007JH	1,000	12	0.180 ±30%	4.190	40	1.2	16.5
SCT19XV-150-1R3A006JH	1,000	15	0.134 ±30%	3.010	45	1.3	16.3
SCT19XV-190-1R5A005JH	1,000	19	0.093 ±30%	1.950	45	1.5	17.2
SCT19XV-220-1R6A004JH	1,000	22	0.060 ±30%	1.430	40	1.6	16.7
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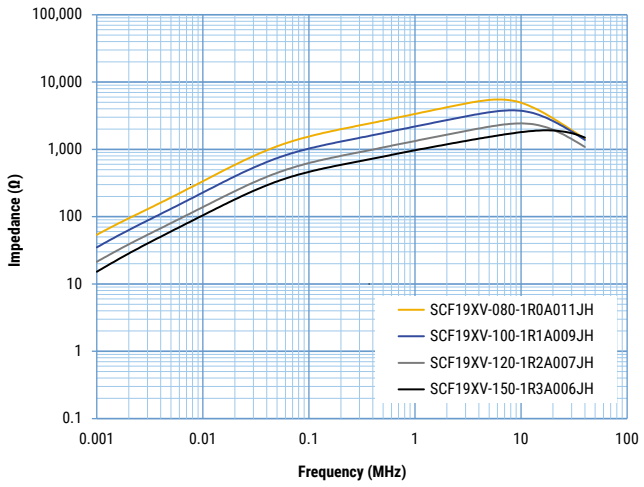
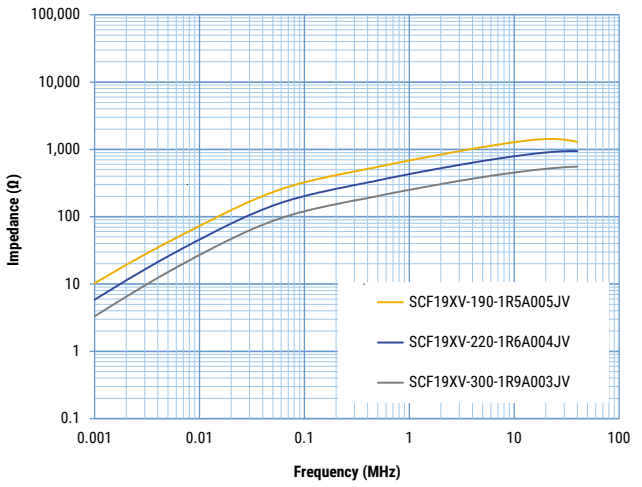
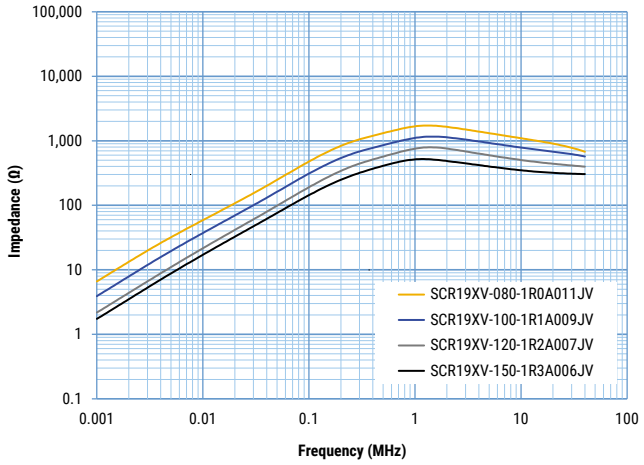
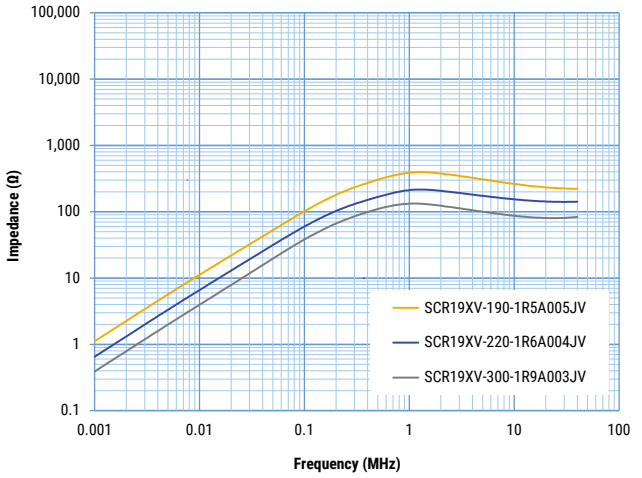
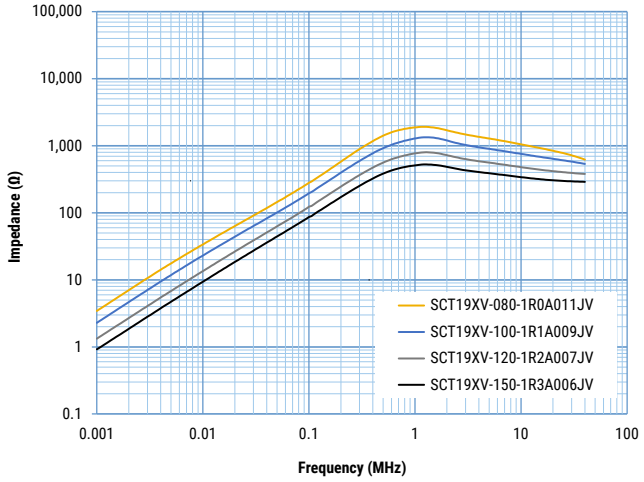
Frequency Characteristics

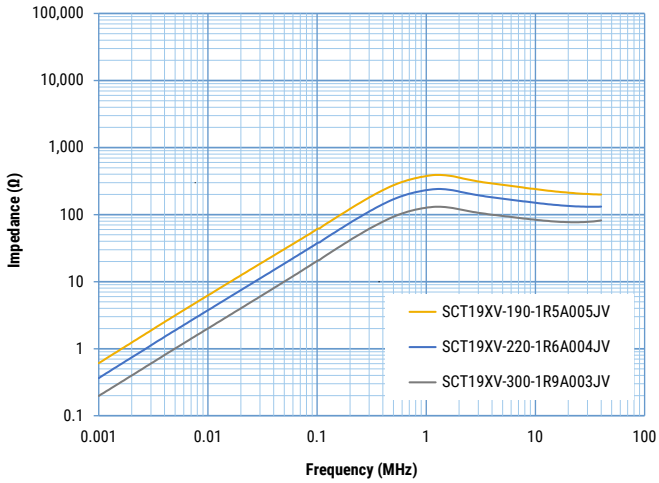




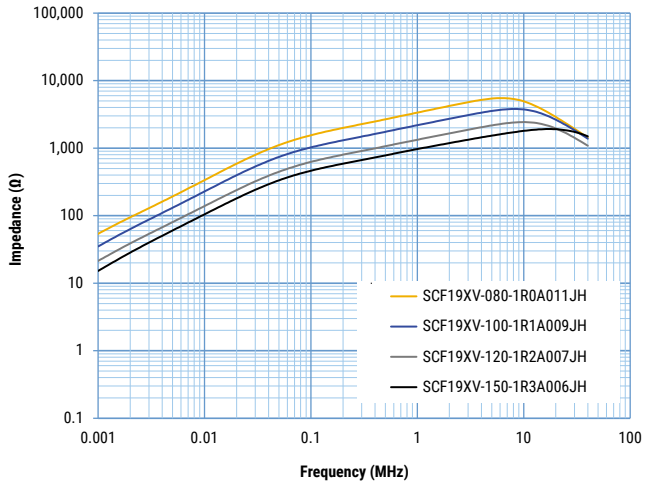


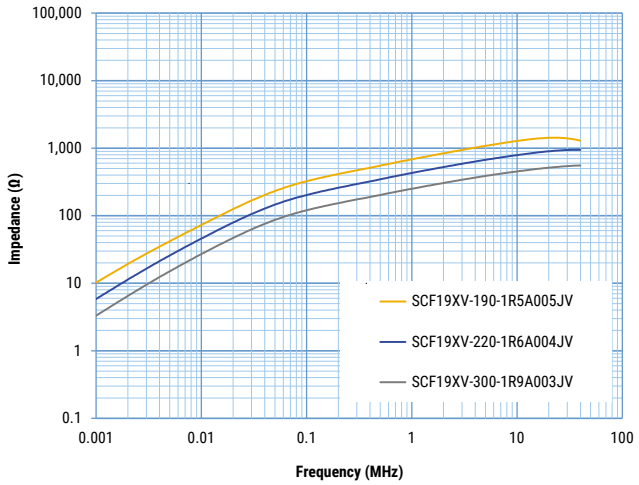


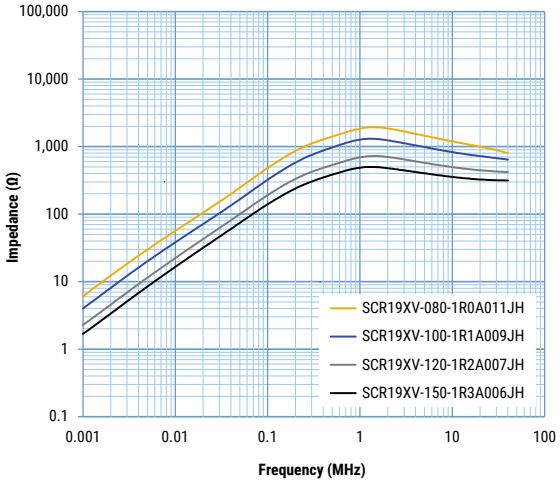


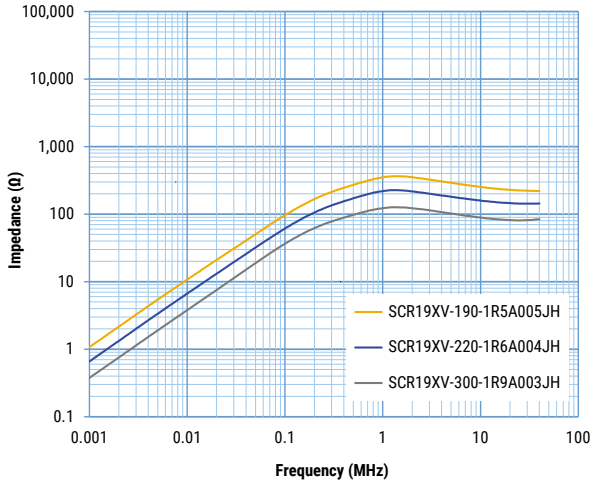


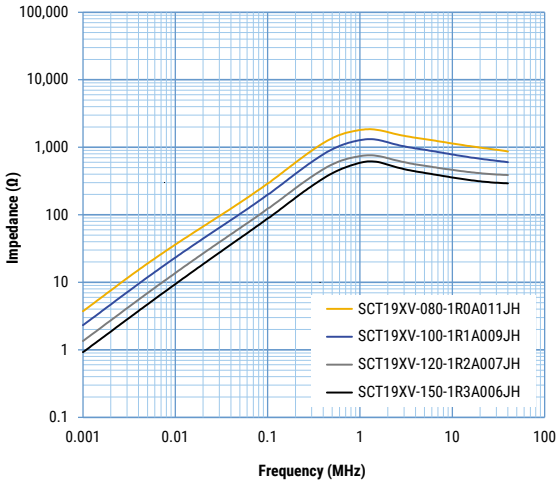
Frequency Characteristics cont.

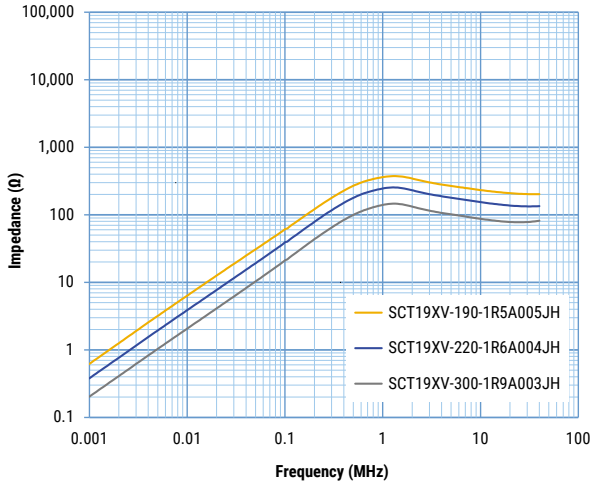












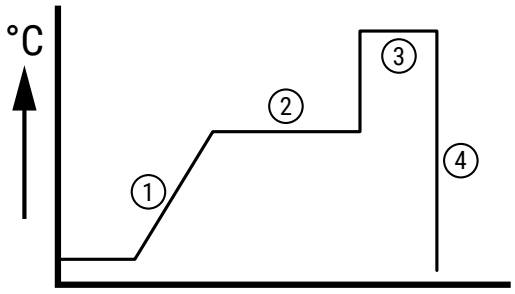
Packaging

Type	Packaging Type	Pieces Per Box
SCF19XV-JV	Tray	210
SCR19XV-JV		
SCT19XV-JV		
SCF19XV-JH		150
SCR19XV-JH		
SCT19XV-JH		

Recommend Solder Condition

Soldering method	Temperature	Soldering time	Number of times
Solder iron	400°C Max.	3sec. Max.	2 times
Dip soldering	260°C Max.	3sec. Max.	2 times
Flow soldering	see below	see below	see below

Flow Soldering Condition



① Reserve Temperature
② Preheat Temperature: 80~110°C Time: 120 seconds
③ Soak Temperature: 250°C Time: 8 seconds
④ Cooling

Solder conditions are for reference only and should be confirmed by the customer there is no problem.

Temperature Rise Measuring Method

Connect the cable to the CMC by soldering and cool it to room temperature. Also, N1 and N2 are shorted.
In order to prevent temperature changes due to air convections, a rated current is applied to the CMC inside the container (container size: about 550 x 450 x 300 mm).
At that time, the temperature of the inner diameter of the CMC and the ambient temperature are measured with a thermocouple and recorded with a data logger.

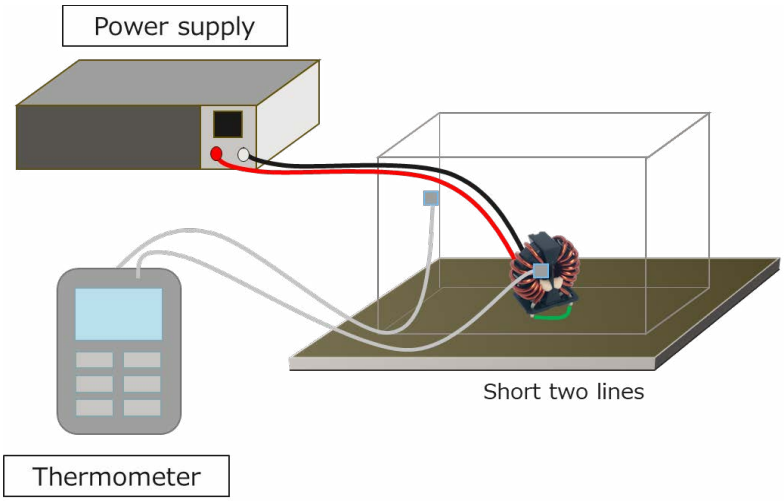


Figure 1 - Measurement system

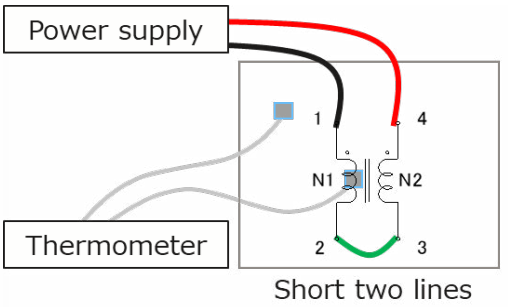


Figure 2 - Schematics

After confirming that the temperature of the CMC has stabilized, turn off the power and calculate the temperature rise value from the measured data using the following formula.

$T = (t2-t_{a2})-(t1-t_{a1})$

And then,

T : Temperature rising (°C)

t_1 : Initial temperature of CMC (°C)

t_2 : Temperature of CMC when current is applied (°C)

t_{a1} : Initial ambient temperature (°C)

t_{a2} : Ambient temperature when current is applied (°C)

AC Line Filters

Dual Mode SCN-XV Coils, Automotive Grade

Overview

The KEMET SCN-XV coils are dual mode chokes with a wide variety of characteristics for automotive and industrial application, especially suitable for harsh environment situations. These hybrid coils combine the two functions of normal mode countermeasure and common mode noise suppression in just one coil. Reducing the number of required products ensures cost savings and space efficiency. Our proprietary ferrite core material 7HT provides optimized solutions for high-temperature requirements, and in addition displays high Bs characteristics, and are useful in various noise countermeasure fields.

Applications

- On board charger for EV/PHEV
- Wireless charging systems with 85 kHz
- Medium power drives for steering, air conditioning and mild hybrid 48 V systems
- High voltage automotive and harsh environment industrial EMI filtering

Benefits

- Proprietary 7HT ferrite material
- High rated voltage up to 1,000 V AC/DC
- Operating temperature range from −40°C up to +150°C
- High permeability
- High impedance
- UL 94 V–0 flame retardant rated base and cap
- AEC-Q200 qualified

SCN35XV Type

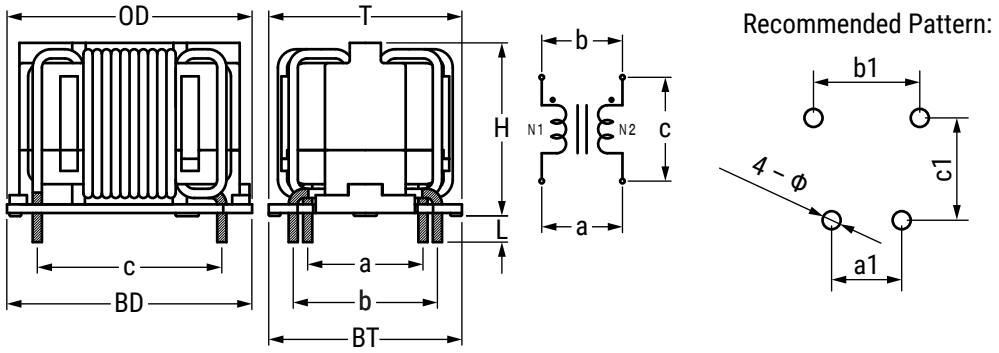
SCN35SXV Type

Part Number System

SCN	35XV-	100-	1R4	A	015	JH
Series	Dimension Code (See Dimensions)	Rated Current (A)	Wire Diameter (mm)	Windings	Number of Turns	Terminal Base Type
SCN	35XV 35SXV	xxx- = xx.x A Examples: 100 = 10.0 A 190 = 19.0 A	R = Decimal point Examples: 1R4 = 1.4 mm 1R9 = 1.9 mm	A = Single	00x = x turns 0xx = xx turns Examples: 008 = 8 turns 015 = 15 turns	JH = Horizontal type

Dimensions – Millimeters

Figure 1



Part Type	Dimensions (mm)				Base Dimensions[2]		Pin Pitch[3]			Recommended Hole Pattern[4]				Figure
	OD (Maximum)	T (Maximum)	H[1]	L	BD	BT	a	b	c	a1	b1	c1	φ	
SCN35XV-100-1R4A015JH	43.5	34.5	30.00 +1.0/-0.6	3.50 ±0.5	42.5 ±0.5	33.5 ±0.5	20.0 ±0.5	25.0 ±0.5	32.0 ±0.5	20.0	25.0	32.0	1.8	Fig. 1
SCN35XV-110-1R5A014JH	43.5	34.5	30.00 +1.0/-0.6	3.50 ±0.5	42.5 ±0.5	33.5 ±0.5	20.0 ±0.5	25.0 ±0.5	32.0 ±0.5	20.0	25.0	32.0	2.0	Fig. 1
SCN35XV-120-1R6A012JH	43.5	34.5	30.00 +1.0/-0.6	3.50 ±0.5	42.5 ±0.5	33.5 ±0.5	20.0 ±0.5	25.0 ±0.5	32.0 ±0.5	20.0	25.0	32.0	2.1	Fig. 1
SCN35XV-140-1R7A010JH	43.5	34.5	30.00 +1.0/-0.6	3.50 ±0.5	42.5 ±0.5	33.5 ±0.5	20.0 ±0.5	25.0 ±0.5	32.0 ±0.5	20.0	25.0	32.0	2.2	Fig. 1
SCN35XV-170-1R9A008JH	43.5	34.5	30.00 +1.0/-0.6	3.50 ±0.5	42.5 ±0.5	33.5 ±0.5	20.0 ±0.5	25.0 ±0.5	32.0 ±0.5	20.0	25.0	32.0	2.5	Fig. 1
SCN35SXV-110-1R4A015JH	43.5	34.5	20.50 +1.0/-0.6	3.50 ±0.5	42.5 ±0.5	33.5 ±0.5	20.0 ±0.5	25.0 ±0.5	32.0 ±0.5	20.0	25.0	32.0	1.8	Fig. 1
SCN35SXV-120-1R5A014JH	43.5	34.5	20.50 +1.0/-0.6	3.50 ±0.5	42.5 ±0.5	33.5 ±0.5	20.0 ±0.5	25.0 ±0.5	32.0 ±0.5	20.0	25.0	32.0	2.0	Fig. 1
SCN35SXV-130-1R6A012JH	43.5	34.5	20.50 +1.0/-0.6	3.50 ±0.5	42.5 ±0.5	33.5 ±0.5	20.0 ±0.5	25.0 ±0.5	32.0 ±0.5	20.0	25.0	32.0	2.1	Fig. 1
SCN35SXV-150-1R7A010JH	43.5	34.5	20.50 +1.0/-0.6	3.50 ±0.5	42.5 ±0.5	33.5 ±0.5	20.0 ±0.5	25.0 ±0.5	32.0 ±0.5	20.0	25.0	32.0	2.2	Fig. 1
SCN35SXV-190-1R9A008JH	43.5	34.5	20.50 +1.0/-0.6	3.50 ±0.5	42.5 ±0.5	33.5 ±0.5	20.0 ±0.5	25.0 ±0.5	32.0 ±0.5	20.0	25.0	32.0	2.5	Fig. 1

[1] *We do not inspect the lower limit dimension. (Design Guarantee)*
[2] *We do not inspect the terminal base dimension. (Design Guarantee)*
[3] *Inspection by using pin-pitch gauge.*
[4] *Implementation conditions, please confirm that there is no pre-problem.*

Magnetic Permeability of Ferrite Material

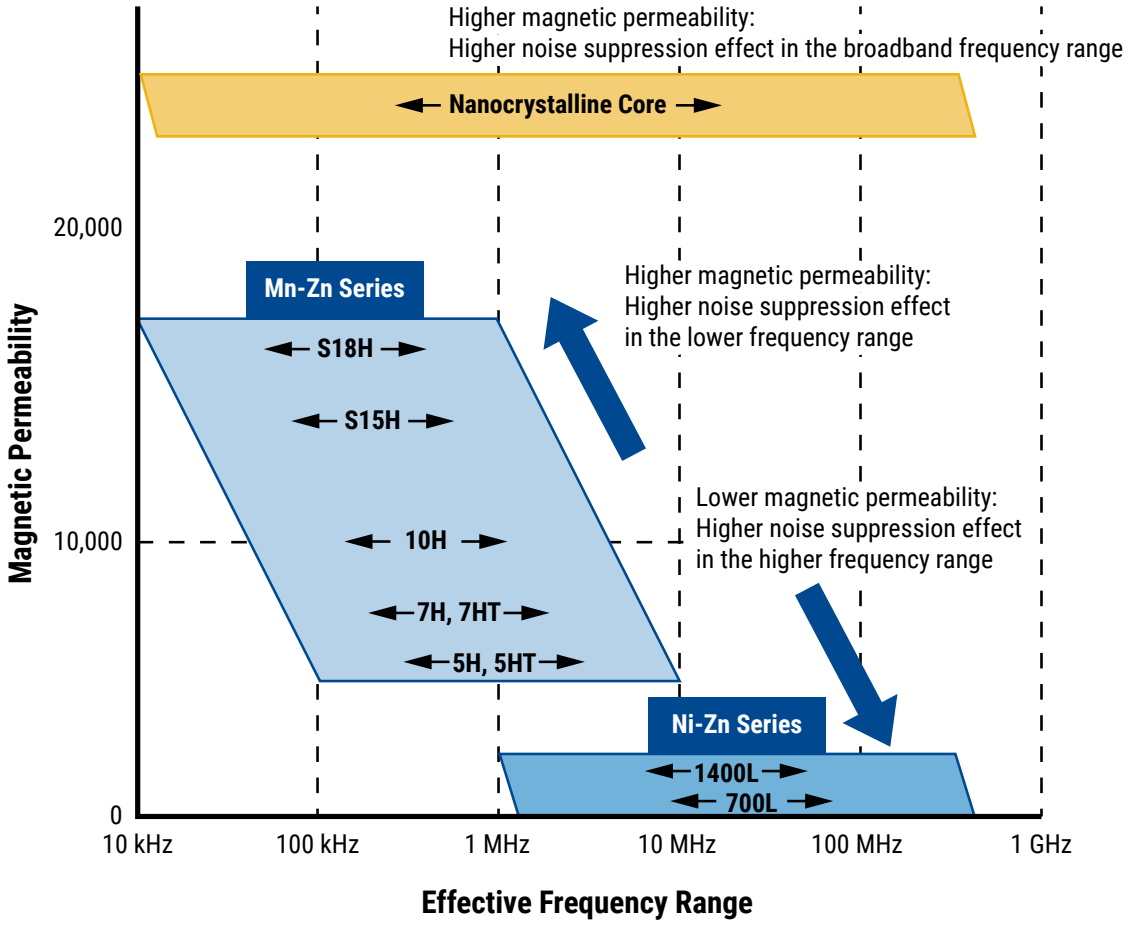
In order to achieve most efficient noise reduction, it is important to select the material according to the target frequency band. Depending on its magnetic permeability, a particular ferrite material will be effective in a certain frequency band. A schematic representation of the relationship between the magnetic permeability of each material and the corresponding effective band range is shown in Figure 1.

Materials with higher magnetic permeability are effective in the lower frequency range, while those with lower magnetic permeability are effective in the higher frequency range. Thus, Mn-Zn products are mainly used for reducing conduction noise, while Ni-Zn products are commonly used for radiation noise countermeasures.

The effective frequency range varies depending on core shape, size and number of windings. This frequency dependence of the magnetic permeability as shown in the figure serves for reference purposes only and it should be tested on the actual device to determine its effectiveness.

S18H, S15H, 10H, 7H, 7HT, 5H, 5HT, 1400L and 700L are KEMET's proprietary ferrite material names.
Other materials can also be available on request.

Figure 1 - Relationship between the magnetic permeability of each material and its effective frequency range

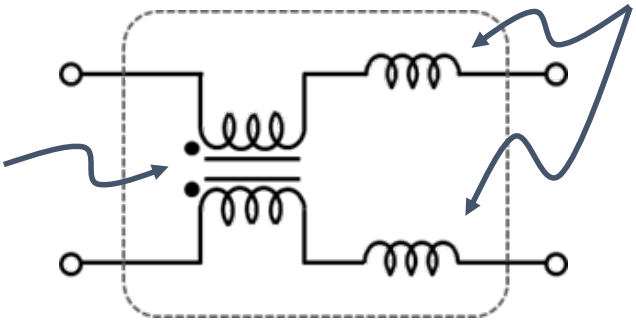


Material List

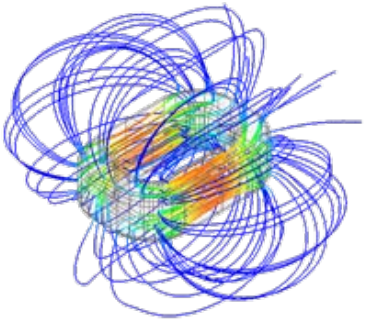
Core Structure for 2 Functions

- Both functions of common and differential mode in one package.
- High temperature resistant.
- Superior DC superimposing characteristics.
- Flat top surface for easy access to heat sink.

Common Mode



Differential (Normal) Mode



Magnetic flux is under control based on electromagnetic simulation.

Environmental Compliance

All KEMET AC Line Filters are RoHS Compliant.

RoHS

Performance Characteristics

Item	Performance Characteristics
Rated Voltage	1,000 VAC/VDC
Withstanding Voltage	2,400 VAC (2 seconds, between lines)
Insulation Resistance	> 100 MΩ at 1,000 VDC (between lines)
Rated Current Range	10 – 19 A
Rated Inductance Range	0.38 – 2.7 mH ±30%
Inductance Measurement Condition	100 kHz
Operating Temperature Range	–40°C to +150°C (include self temperature rise)

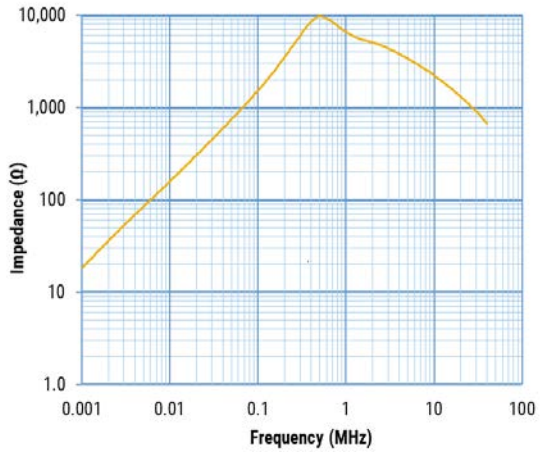
Table 1 – Ratings & Part Number Reference

Part Number	Rated Voltage AC/DC (V)	Rated Current (A)	Inductance (Common) 100 kHz (mH) ±30%	Inductance (Normal) 100 kHz (µH) ±20%	DC Resistance/ Line (mΩ) ±13%	Temperature Rise (K) Reference	Wire Diameter (mm)	Weight (g) Approximate
SCN35XV-100-1R4A015JH	1,000	10	2.70	13.9	11.10	50	1.4	81.9
SCN35XV-110-1R5A014JH	1,000	11	2.35	12.2	8.95	45	1.5	84.7
SCN35XV-120-1R6A012JH	1,000	12	1.73	9.8	6.85	40	1.6	83.8
SCN35XV-140-1R7A010JH	1,000	14	1.20	7.5	5.05	50	1.7	82.4
SCN35XV-170-1R9A008JH	1,000	17	0.77	4.8	3.25	45	1.9	82.8
SCN35SXV-110-1R4A015JH	1,000	11	1.35	11.1	7.78	50	1.4	49.6
SCN35SXV-120-1R5A014JH	1,000	12	1.18	9.5	6.36	45	1.5	51.1
SCN35SXV-130-1R6A012JH	1,000	13	0.86	7.6	4.85	45	1.6	50.5
SCN35SXV-150-1R7A010JH	1,000	15	0.60	5.8	3.52	45	1.7	49.6
SCN35SXV-190-1R9A008JH	1,000	19	0.38	3.7	2.36	45	1.9	50.0

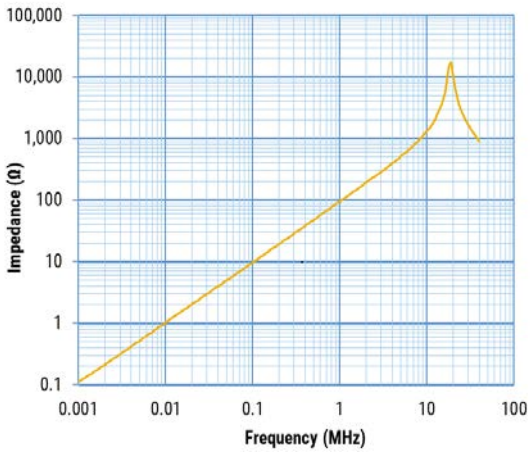
Frequency Characteristics

SCN35XV-100-1R4A015JH

Common Mode



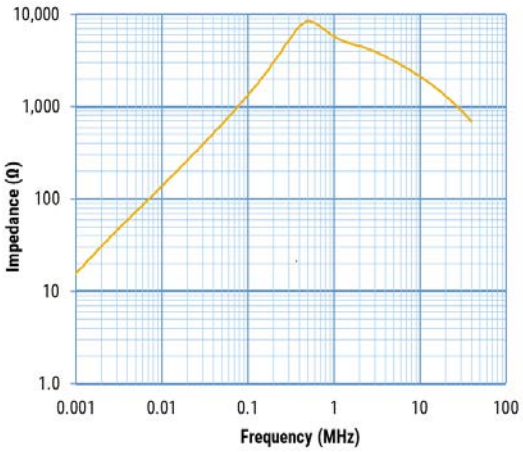
Normal Mode



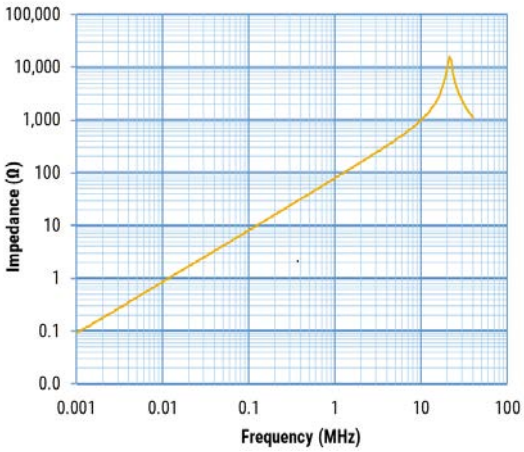
Frequency Characteristics cont.

SCN35XV-110-1R5A014JH

Common Mode

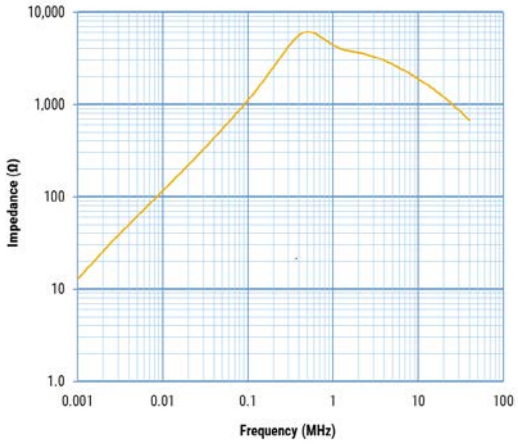


Normal Mode

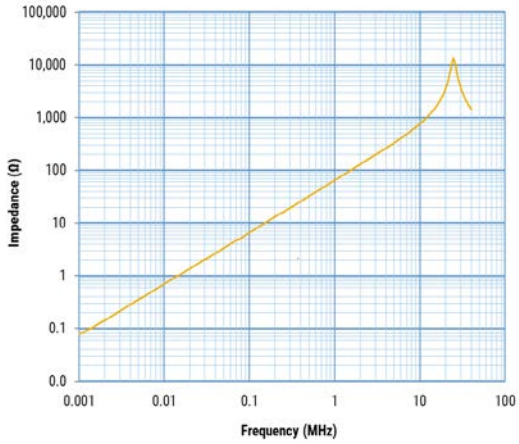


SCN35XV-120-1R6A012JH

Common Mode



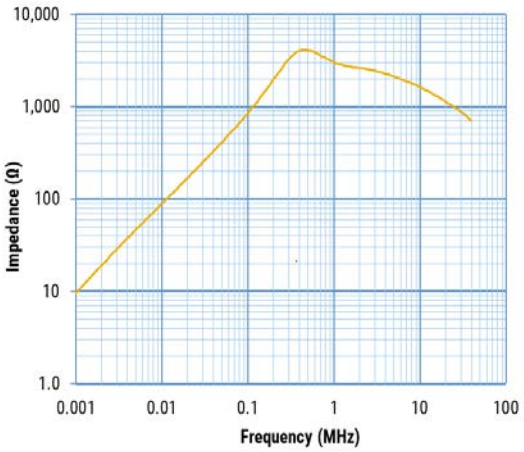
Normal Mode



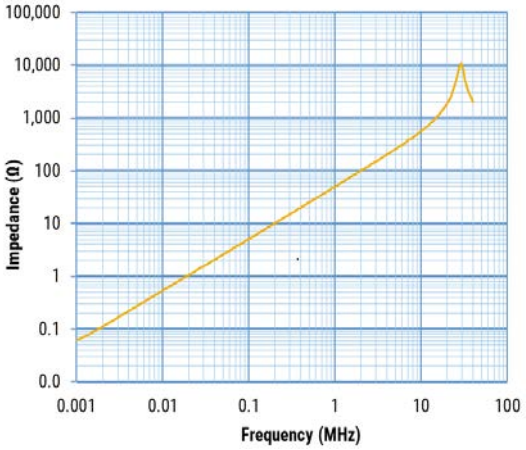
Frequency Characteristics cont.

SCN35XV-140-1R7A010JH

Common Mode

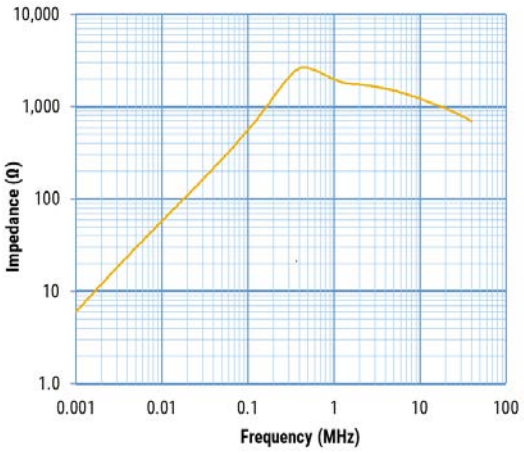


Normal Mode

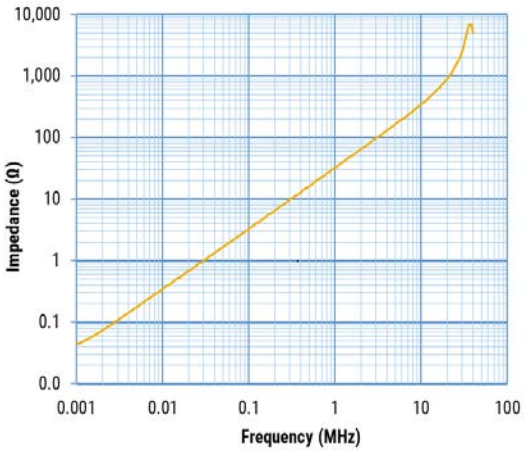


SCN35XV-170-1R9A008JH

Common Mode



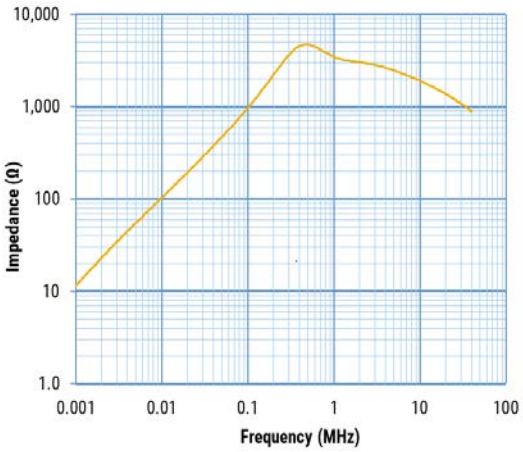
Normal Mode



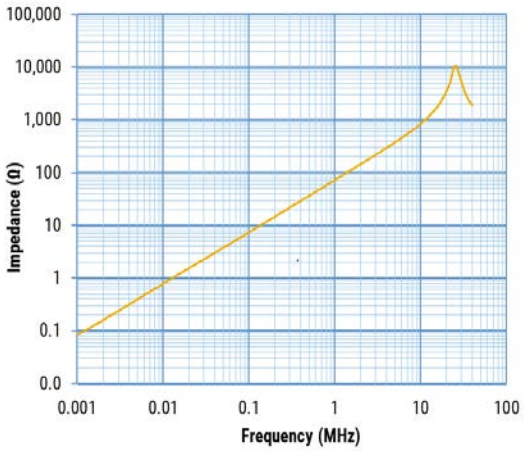
Frequency Characteristics cont.

SCN35SXV-110-1R4A015JH

Common Mode

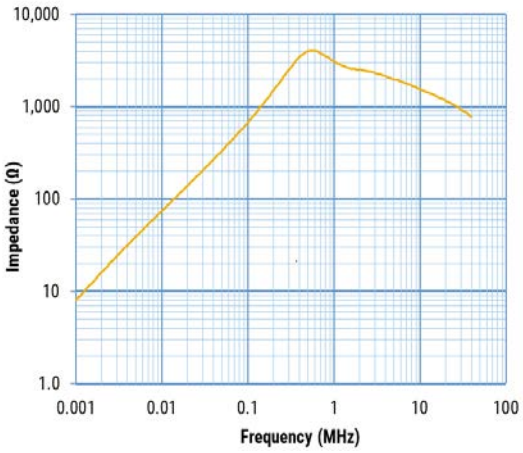


Normal Mode

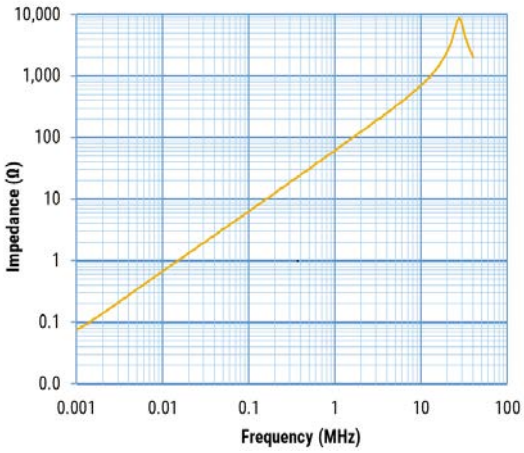


SCN35SXV-120-1R5A014JH

Common Mode



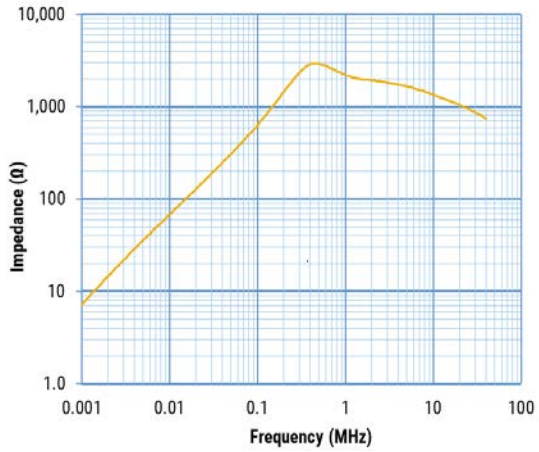
Normal Mode



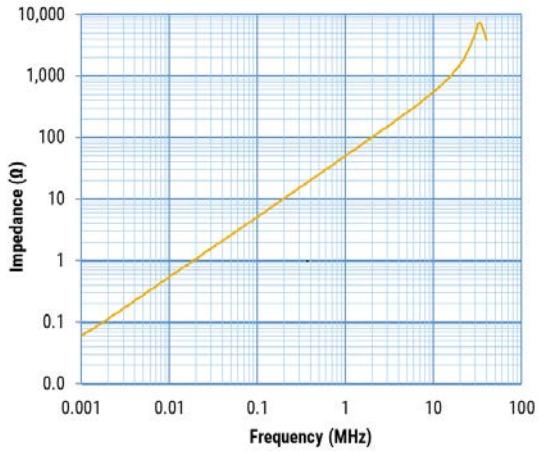
Frequency Characteristics cont.

SCN35SXV-130-1R6A012JH

Common Mode

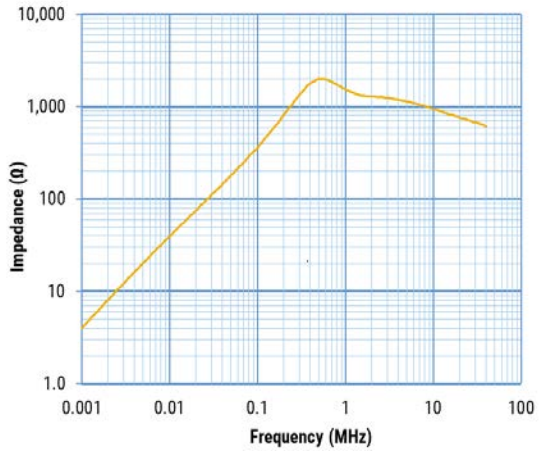


Normal Mode

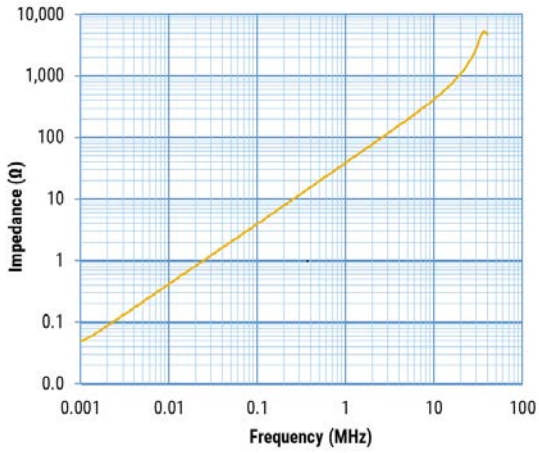


SCN35SXV-150-1R7A010JH

Common Mode



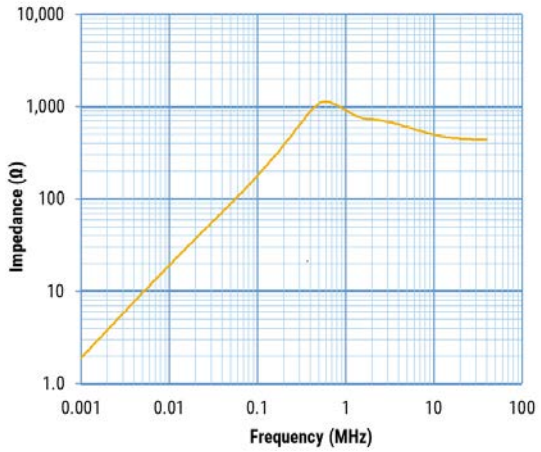
Normal Mode



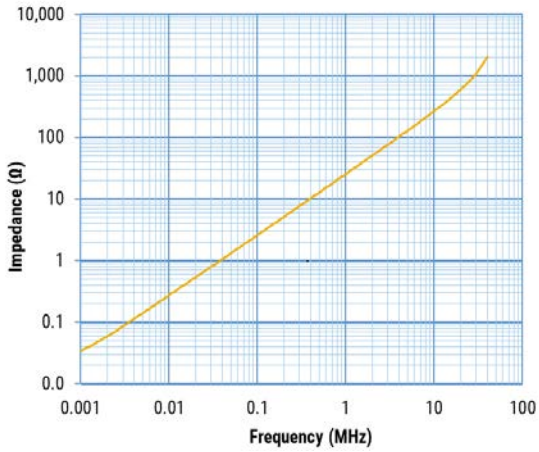
Frequency Characteristics cont.

SCN35SXV-190-1R9A008JH

Common Mode



Normal Mode



Packaging

Type	Packaging Type	Pieces Per Box
SCN35XV	Tray	80
SCN35SXV		100

Handling Precautions

Precautions for product storage
AC Line Filters should be stored in normal working environments. While the chokes themselves are quite robust in other environments, solderability will be degraded by exposure to high temperatures, high humidity, corrosive atmospheres, and long term storage.

KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 70% relative humidity. Atmospheres should be free of chlorine and sulfur bearing compounds. Temperature fluctuations should be minimized to avoid condensation on the parts. Avoid storage near strong magnetic fields, as this might magnetize the product.

For optimized solderability, AC line filters stock should be used promptly and preferably within 6 months of receipt.

Product temperature rise values
The values listed for temperature rise are the result of self-heating in wires when the rated current (commercial frequency) is applied.

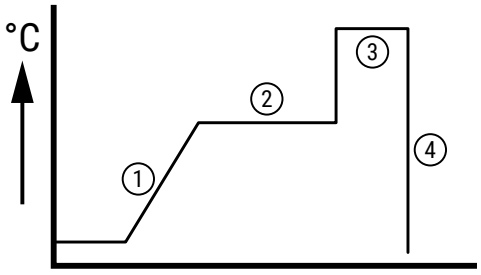
When using the product, check and evaluate the value of the core temperature rise under actual operating conditions.

Recommended Solder Condition

Recommend Solder Condition (Reference)

Soldering Method	Temperature	Soldering Time	Number of Times
Solder Iron	400°C Maximum	3 Seconds Maximum	2 Times
Dip Soldering	260°C Maximum	3 Seconds Maximum	2 Times
Flow Soldering	See Below	See Below	See Below

Flow Soldering Condition



① Reserve Temperature
② Preheat Temperature: 80~110°C Time: 120 seconds
③ Soak Temperature: 250°C Time: 8 seconds
④ Cooling

Solder conditions, please confirm that there is no problem.

Temperature Rise Measuring Method

Connect the cable to the CMC by soldering and cool it to room temperature. Also, N1 and N2 are shorted.
In order to prevent temperature changes due to air convections, a rated current is applied to the CMC inside the container (container size: about 550 x 450 x 300 mm). At that time, the temperature of the inner diameter of the CMC and the ambient temperature are measured with a thermocouple and recorded with a data logger.

Figure 1 – Measurement System

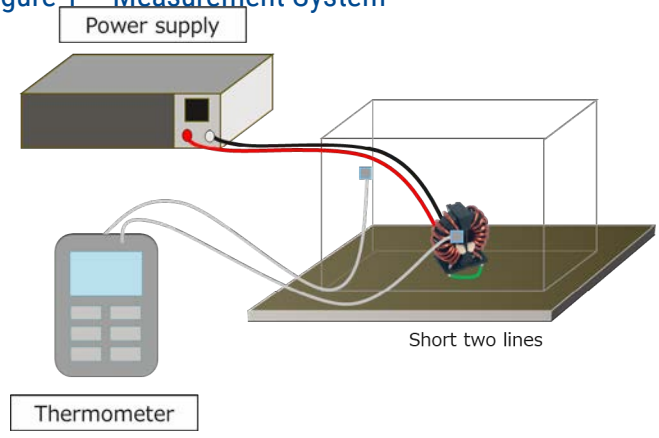
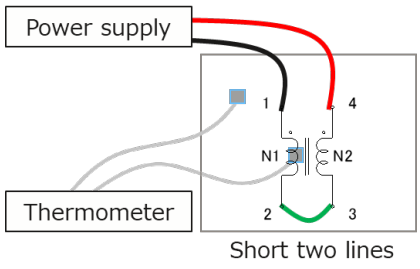


Figure 2 – Schematics



Temperature Rise Measuring Method cont.

After confirming that the temperature of the CMC has stabilized, turn off the power and calculate the temperature rise value from the measured data using the following formula:

$$T = (t_2 - t_{a2}) - (t_1 - t_{a1})$$

And then,

T : Temperature rising (°C)
t_1 : Initial temperature of CMC (°C)
t_2 : Temperature of CMC when current is applied (°C)
t_{a1} : Initial ambient temperature (°C)
t_{a2} : Ambient temperature when current is applied (°C)

AC Line Filters

Common Mode SCF25XV, SCR25XV & SCT25XV Coils, Automotive Grade

Overview

The KEMET SCF25XV, SCR25XV & SCT25XV coils are common mode chokes with a wide variety of characteristics for automotive and harsh environment industrial application. These toroidal coils are designed with nanocrystalline metal and Mn-Zn Ferrite cores and are useful in various noise countermeasure fields.

Applications

- On board charger for EV/PHEV
- Wireless charging systems with 85 kHz
- Medium power drives for steering, air conditioning and mild hybrid 48 V systems
- High voltage automotive and harsh environment industrial EMI filtering

Benefits

- Nanocrystalline metal core for SCF25XV
- Mn-Zn Ferrite S15H for SCR25XV
- Mn-Zn Ferrite 7HT for SCT25XV
- High rated voltage up to 1,000 V AC/DC
- Operating temperature range from -40°C to +150°C (SCF25XV & SCT25XV)
- Operating temperature range from -40°C to +120°C (SCR25XV)
- Ultra-high inductance for SCF25XV
- Ultra-high permeability for SCR25XV
- UL 94 V–0 flame retardant rated base and cap
- AEC-Q200 qualified

SC25XV-JV

SC25XV-JH

Part Number System

SC	F	25X	V	080-		1R0	A	011	JV
Series	Core material Code	"Dimension Code (See Dimensions)"	Automotive Grade	"Rated Current (A)"	Phase	"Wire Diameter (mm)"	Windings	Number of Turns	Terminal Base Type
SC	"F = Nanocrystal core R = Mn-Zn Ferrite core S15H T = Mn-Zn Ferrite core 7HT"	25X	V = AEC-Q200 qualified	"xxx- = xx.x A Examples: 080 = 8.0 A 200 = 20.0 A"	Blank = Single-phase	"R = Decimal point Examples: 1R0 = 1.0 mm 2R4 = 2.4 mm"	A = Single	"00x = x turns 0xx = xx turns Examples: 005 = 5 turns 011 = 11 turns"	"JV = Vertical type JH = Horizontal type"

Magnetic Permeability of Ferrite Material

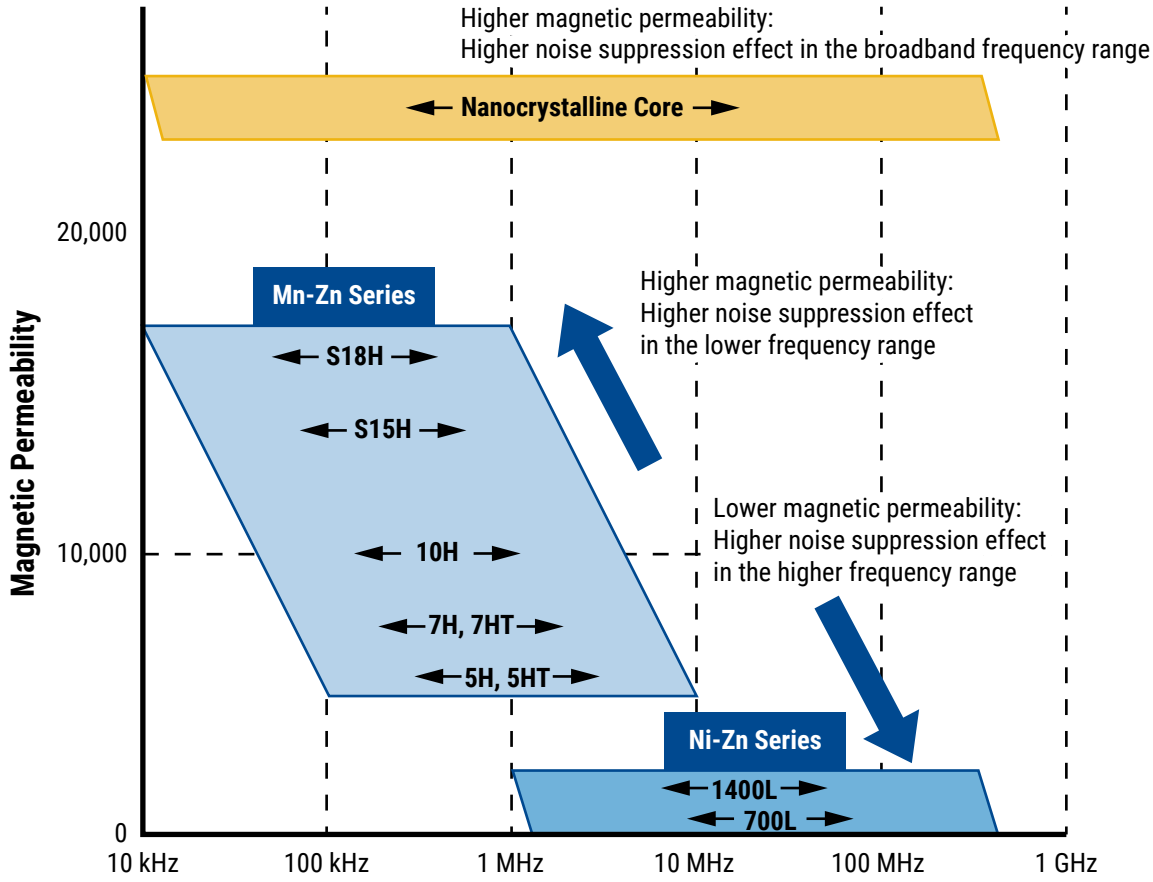
In order to achieve efficient noise reduction, it is important to select the material according to the target frequency band. Depending on its magnetic permeability, a particular ferrite material or metal material will be effective in a certain frequency band. A schematic representation of the relationship between the magnetic permeability of each material and the corresponding effective band range is shown in Figure 1.

Materials with higher magnetic permeability are effective in the lower frequency range, while those with lower magnetic permeability are effective in the higher frequency range. Thus, Mn-Zn products are mainly used for reducing conduction noise, while Ni-Zn products are commonly used for radiation noise countermeasures. Metal materials, however, are effective throughout the broadband frequency range, in low as well as high frequencies.

The effective frequency range varies depending on core shape, size, and number of windings. This frequency dependence of the magnetic permeability as shown in the figure serves for reference purposes only. It should be tested on the actual device to determine its effectiveness.

S18H, S15H, 10H, 7H, 7HT, 5H, 5HT, 1400L, and 700L are KEMET's proprietary ferrite material names. Other materials are available upon request.

Figure 1 - Relationship between the magnetic permeability of each material and its effective frequency range



Dimensions – Millimeters

Figure 1

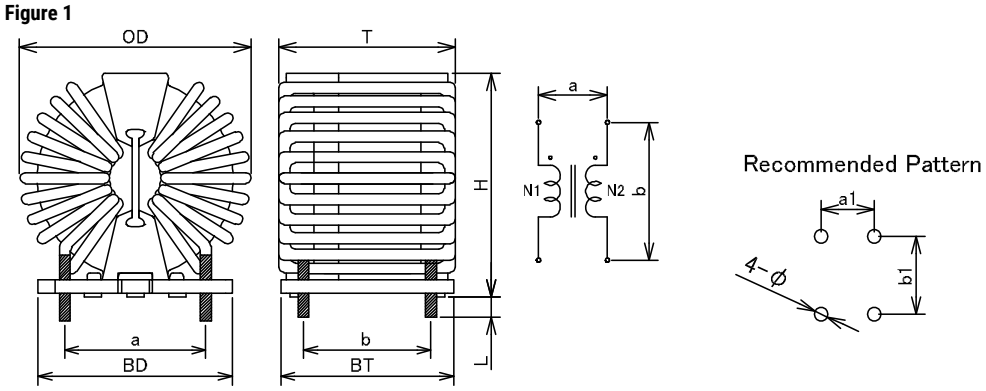
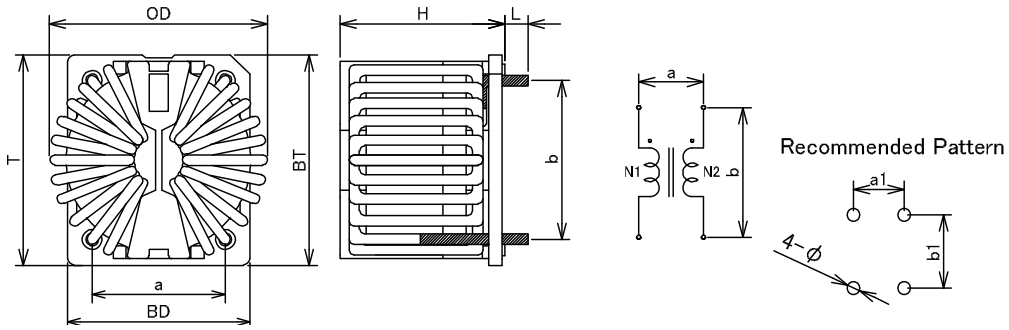


Figure 2



Part Type	Dimensions (mm)				Base Dimensions[2]		Pin Pitch[3]		Recommended Hole Pattern[4]			Figure
	OD (Maximum)	T (Maximum)	H [1]	L	BD	BT	a	b	a1	b1	φ	
SCF25XV-050-1R0A027JV	34.0	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	1.4	Fig. 1
SCF25XV-070-1R1A022JV	34.0	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	1.5	Fig. 1
SCF25XV-080-1R2A018JV	34.0	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	1.6	Fig. 1
SCF25XV-100-1R3A016JV	35.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	1.7	Fig. 1
SCF25XV-110-1R4A013JV	35.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	1.8	Fig. 1
SCF25XV-130-1R5A012JV	35.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	2.0	Fig. 1
SCF25XV-150-1R6A010JV	35.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	2.1	Fig. 1
SCF25XV-170-1R7A009JV	35.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	2.2	Fig. 1
SCF25XV-190-1R8A008JV	35.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	2.4	Fig. 1
SCF25XV-220-1R9A007JV	37.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	2.5	Fig. 1
SCF25XV-240-2R0A006JV	37.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	2.6	Fig. 1
SCF25XV-280-2R1A005JV	37.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	2.7	Fig. 1
SCF25XV-310-2R3A004JV	37.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	3.0	Fig. 1
SCF25XV-350-2R4A003JV	37.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	3.1	Fig. 1

[1] We do not inspect the lower limit dimension. (design guarantee)
[2] We do not inspect the terminal base dimension. (design guarantee)
[3] Inspection by using pin-pitch gauge.
[4] Implementation conditions, please confirm that there is no pre-problem.

Dimensions – Millimeters cont.

Part Type	Dimensions (mm)				Base Dimensions[2]		Pin Pitch[3]		Recommended Hole Pattern[4]			Figure
	OD (Maximum)	T (Maximum)	H [1]	L	BD	BT	a	b	a1	b1	φ	
SCR25XV-050-1R0A027JV	34.0	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	1.4	Fig. 1
SCR25XV-070-1R1A022JV	34.0	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	1.5	Fig. 1
SCR25XV-080-1R2A018JV	34.0	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	1.6	Fig. 1
SCR25XV-100-1R3A016JV	35.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	1.7	Fig. 1
SCR25XV-110-1R4A013JV	35.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	1.8	Fig. 1
SCR25XV-130-1R5A012JV	35.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	2.0	Fig. 1
SCR25XV-150-1R6A010JV	35.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	2.1	Fig. 1
SCR25XV-170-1R7A009JV	35.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	2.2	Fig. 1
SCR25XV-190-1R8A008JV	35.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	2.4	Fig. 1
SCR25XV-220-1R9A007JV	37.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	2.5	Fig. 1
SCR25XV-240-2R0A006JV	37.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	2.6	Fig. 1
SCR25XV-280-2R1A005JV	37.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	2.7	Fig. 1
SCR25XV-310-2R3A004JV	37.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	3.0	Fig. 1
SCR25XV-350-2R4A003JV	37.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	3.1	Fig. 1
SCT25XV-050-1R0A027JV	34.0	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	1.4	Fig. 1
SCT25XV-070-1R1A022JV	34.0	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	1.5	Fig. 1
SCT25XV-080-1R2A018JV	34.0	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	1.6	Fig. 1
SCT25XV-100-1R3A016JV	35.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	1.7	Fig. 1
SCT25XV-110-1R4A013JV	35.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	1.8	Fig. 1
SCT25XV-130-1R5A012JV	35.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	2.0	Fig. 1
SCT25XV-150-1R6A010JV	35.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	2.1	Fig. 1
SCT25XV-170-1R7A009JV	35.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	2.2	Fig. 1
SCT25XV-190-1R8A008JV	35.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	2.4	Fig. 1
SCT25XV-220-1R9A007JV	37.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	2.5	Fig. 1
SCT25XV-240-2R0A006JV	37.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	2.6	Fig. 1
SCT25XV-280-2R1A005JV	37.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	2.7	Fig. 1
SCT25XV-310-2R3A004JV	37.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	3.0	Fig. 1
SCT25XV-350-2R4A003JV	37.5	26.0	32.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	25.50 ±0.5	20.5 ±0.5	18.5 ±0.5	20.5	18.5	3.1	Fig. 1
SCF25XV-050-1R0A027JH	34.0	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	1.4	Fig. 2
SCF25XV-070-1R1A022JH	34.0	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	1.5	Fig. 2
SCF25XV-080-1R2A018JH	34.0	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	1.6	Fig. 2
SCF25XV-100-1R3A016JH	35.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	1.7	Fig. 2
SCF25XV-110-1R4A013JH	35.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	1.8	Fig. 2
SCF25XV-130-1R5A012JH	35.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	2.0	Fig. 2
SCF25XV-150-1R6A010JH	35.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	2.1	Fig. 2
SCF25XV-170-1R7A009JH	35.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	2.2	Fig. 2
SCF25XV-190-1R8A008JH	35.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	2.4	Fig. 2
SCF25XV-220-1R9A007JH	37.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	2.5	Fig. 2
SCF25XV-240-2R0A006JH	37.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	2.6	Fig. 2
SCF25XV-280-2R1A005JH	37.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	2.7	Fig. 2
SCF25XV-310-2R3A004JH	37.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	3.0	Fig. 2
SCF25XV-350-2R4A003JH	37.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	3.1	Fig. 2

[1] We do not inspect the lower limit dimension. (design guarantee)

[2] We do not inspect the terminal base dimension. (design guarantee)

[3] Inspection by using pin-pitch gauge.

[4] Implementation conditions, please confirm that there is no pre-problem.

Dimensions – Millimeters cont.

Part Type	Dimensions (mm)				Base Dimensions[2]		Pin Pitch[3]		Recommended Hole Pattern[4]			Figure
	OD (Maximum)	T (Maximum)	H [1]	L	BD	BT	a	b	a1	b1	φ	
SCR25XV-050-1R0A027JH	34.0	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	1.4	Fig. 2
SCR25XV-070-1R1A022JH	34.0	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	1.5	Fig. 2
SCR25XV-080-1R2A018JH	34.0	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	1.6	Fig. 2
SCR25XV-100-1R3A016JH	35.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	1.7	Fig. 2
SCR25XV-110-1R4A013JH	35.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	1.8	Fig. 2
SCR25XV-130-1R5A012JH	35.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	2.0	Fig. 2
SCR25XV-150-1R6A010JH	35.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	2.1	Fig. 2
SCR25XV-170-1R7A009JH	35.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	2.2	Fig. 2
SCR25XV-190-1R8A008JH	35.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	2.4	Fig. 2
SCR25XV-220-1R9A007JH	37.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	2.5	Fig. 2
SCR25XV-240-2R0A006JH	37.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	2.6	Fig. 2
SCR25XV-280-2R1A005JH	37.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	2.7	Fig. 2
SCR25XV-310-2R3A004JH	37.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	3.0	Fig. 2
SCR25XV-350-2R4A003JH	37.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	3.1	Fig. 2
SCT25XV-050-1R0A027JH	34.0	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	1.4	Fig. 2
SCT25XV-070-1R1A022JH	34.0	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	1.5	Fig. 2
SCT25XV-080-1R2A018JH	34.0	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	1.6	Fig. 2
SCT25XV-100-1R3A016JH	35.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	1.7	Fig. 2
SCT25XV-110-1R4A013JH	35.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	1.8	Fig. 2
SCT25XV-130-1R5A012JH	35.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	2.0	Fig. 2
SCT25XV-150-1R6A010JH	35.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	2.1	Fig. 2
SCT25XV-170-1R7A009JH	35.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	2.2	Fig. 2
SCT25XV-190-1R8A008JH	35.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	2.4	Fig. 2
SCT25XV-220-1R9A007JH	37.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	2.5	Fig. 2
SCT25XV-240-2R0A006JH	37.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	2.6	Fig. 2
SCT25XV-280-2R1A005JH	37.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	2.7	Fig. 2
SCT25XV-310-2R3A004JH	37.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	3.0	Fig. 2
SCT25XV-350-2R4A003JH	37.5	33.0	25.50 +1.0/-0.6	3.50 ±0.5	28.20 ±0.5	32.50 ±0.5	20.5 ±0.5	24.5 ±0.5	20.5	24.5	3.1	Fig. 2

[1] We do not inspect the lower limit dimension. (design guarantee)
[2] We do not inspect the terminal base dimension. (design guarantee)
[3] Inspection by using pin-pitch gauge.
[4] Implementation conditions, please confirm that there is no pre-problem.

Environmental Compliance

All KEMET AC line filters are RoHS Compliant.

RoHS

Performance Characteristics

Item	Performance Characteristics
Rated Voltage	1,000 VAC/VDC
Withstanding Voltage	2,400 VAC (2 seconds, between lines)
Insulation Resistance	> 100 MΩ at 1,000 VDC (between lines)
Rated Current Range	5 – 35 A
Rated Inductance Range	0.220 - 17.800 mH +50%, -30% for SCF25XV type 0.110 - 8.900 mH ±35% for SCR25XV type 0.072 - 5.860 mH ±30% for SCT25XV type
Inductance Measurement Condition	100 kHz
Operating Temperature Range	-40°C to +150°C (include self temperature rise) for SCF19XV & SCT19XV type -40°C to +120°C (include self temperature rise) for SCR19XV type

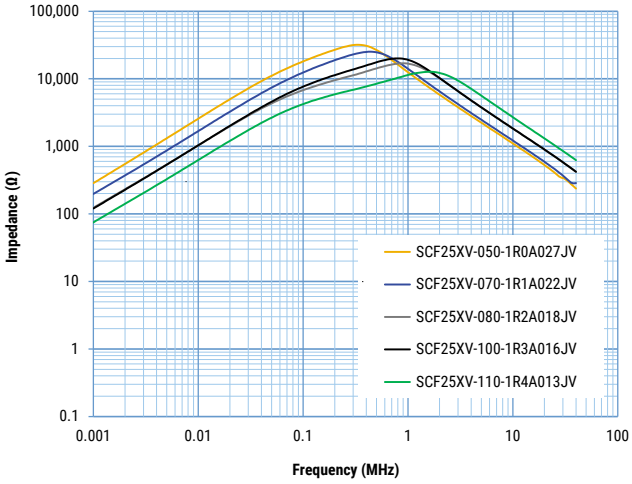
Table 1 – Ratings & Part Number Refere

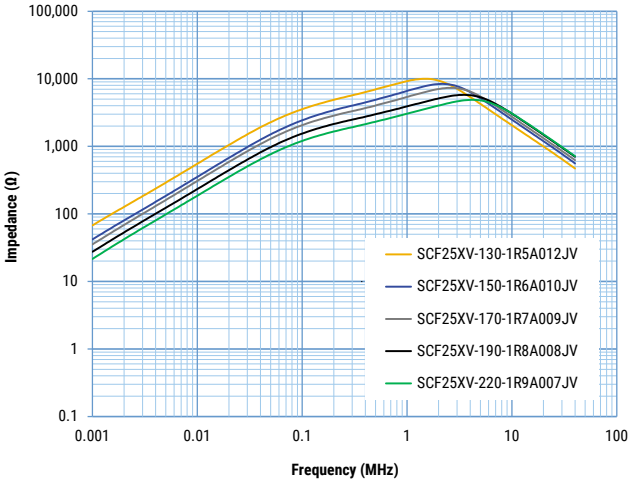
Part Number	Rated Voltage AC/DC (V)	Rated Current (A)	Inductance 100kHz (mH)	DC Resistance/ Line (mΩ) ±13%	Temperature Rise (K) Reference	Wire Diameter (mm)	Weight (g) Approximate
SCF25XV-050-1R0A027JV	1,000	5	17.800 +50%, -30%	30.590	40	1.0	49.4
SCF25XV-070-1R1A022JV	1,000	7	11.800 +50%, -30%	20.830	50	1.1	49.1
SCF25XV-080-1R2A018JV	1,000	8	7.900 +50%, -30%	14.410	40	1.2	49.3
SCF25XV-100-1R3A016JV	1,000	10	6.300 +50%, -30%	10.910	45	1.3	50.2
SCF25XV-110-1R4A013JV	1,000	11	4.100 +50%, -30%	7.720	45	1.4	49.3
SCF25XV-130-1R5A012JV	1,000	13	3.500 +50%, -30%	6.330	45	1.5	49.2
SCF25XV-150-1R6A010JV	1,000	15	2.500 +50%, -30%	4.620	45	1.6	49.7
SCF25XV-170-1R7A009JV	1,000	17	2.000 +50%, -30%	3.710	50	1.7	50.4
SCF25XV-190-1R8A008JV	1,000	19	1.600 +50%, -30%	2.980	50	1.8	50.1
SCF25XV-220-1R9A007JV	1,000	22	1.200 +50%, -30%	2.350	50	1.9	50.5
SCF25XV-240-2R0A006JV	1,000	24	0.900 +50%, -30%	1.840	50	2.0	48.5
SCF25XV-280-2R1A005JV	1,000	28	0.600 +50%, -30%	1.390	45	2.1	47.8
SCF25XV-310-2R3A004JV	1,000	31	0.400 +50%, -30%	0.950	45	2.3	48.4
SCF25XV-350-2R4A003JV	1,000	35	0.220 +50%, -30%	0.650	45	2.4	44.3
SCR25XV-050-1R0A027JV	1,000	5	8.900 ±35%	30.590	40	1.0	46.7
SCR25XV-070-1R1A022JV	1,000	7	5.900 ±35%	20.830	50	1.1	47
SCR25XV-080-1R2A018JV	1,000	8	4.000 ±35%	14.410	40	1.2	47
SCR25XV-100-1R3A016JV	1,000	10	3.100 ±35%	10.910	45	1.3	47.6
SCR25XV-110-1R4A013JV	1,000	11	2.100 ±35%	7.720	45	1.4	46.8
SCR25XV-130-1R5A012JV	1,000	13	1.770 ±35%	6.330	45	1.5	48.5
SCR25XV-150-1R6A010JV	1,000	15	1.230 ±35%	4.620	45	1.6	47.4
SCR25XV-170-1R7A009JV	1,000	17	1.000 ±35%	3.710	50	1.7	47.9
SCR25XV-190-1R8A008JV	1,000	19	0.780 ±35%	2.980	50	1.8	47.7
SCR25XV-220-1R9A007JV	1,000	22	0.600 ±35%	2.350	50	1.9	47.6
SCR25XV-240-2R0A006JV	1,000	24	0.440 ±35%	1.840	50	2.0	46.5
SCR25XV-280-2R1A005JV	1,000	28	0.310 ±35%	1.390	45	2.1	45.5
SCR25XV-310-2R3A004JV	1,000	31	0.197 ±35%	0.950	45	2.3	45.2
SCR25XV-350-2R4A003JV	1,000	35	0.110 ±35%	0.650	45	2.4	42.2
SCT25XV-050-1R0A027JV	1,000	5	5.860 ±30%	30.590	40	1.0	46.6
SCT25XV-070-1R1A022JV	1,000	7	3.890 ±30%	20.830	50	1.1	46.8
SCT25XV-080-1R2A018JV	1,000	8	2.600 ±30%	14.410	40	1.2	46.8
SCT25XV-100-1R3A016JV	1,000	10	2.050 ±30%	10.910	45	1.3	47.6
SCT25XV-110-1R4A013JV	1,000	11	1.350 ±30%	7.720	45	1.4	46.7
SCT25XV-130-1R5A012JV	1,000	13	1.150 ±30%	6.330	45	1.5	48.3
SCT25XV-150-1R6A010JV	1,000	15	0.800 ±30%	4.620	45	1.6	47.8
Part Number	**Rated Voltage AC/DC (V)**	**Rated Current (A)**	**Inductance 100kHz (mH)**	**DC Resistance/Line (mΩ) ±13%**	**Temperature Rise (K) Reference**	**Wire Diameter (mm)**	**Weight (g) Approximate**

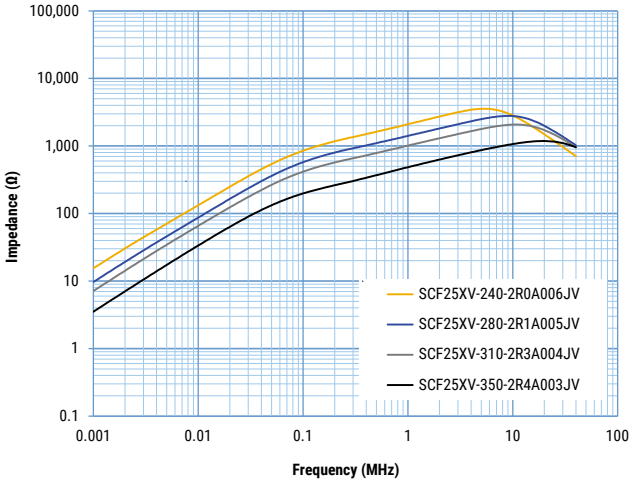
Table 1 – Ratings & Part Number Reference cont.

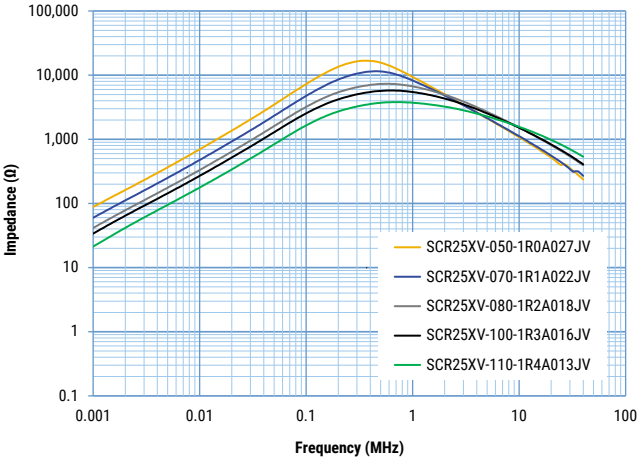
Part Number	Rated Voltage AC/DC (V)	Rated Current (A)	Inductance 100kHz (mH)	DC Resistance/ Line (mΩ) ±13%	Temperature Rise (K) Reference	Wire Diameter (mm)	Weight (g) Approximate
SCT25XV-170-1R7A009JV	1,000	17	0.650 ±30%	3.710	50	1.7	47.8
SCT25XV-190-1R8A008JV	1,000	19	0.510 ±30%	2.980	50	1.8	47.9
SCT25XV-220-1R9A007JV	1,000	22	0.390 ±30%	2.350	50	1.9	46.6
SCT25XV-240-2R0A006JV	1,000	24	0.290 ±30%	1.840	50	2.0	44.8
SCT25XV-280-2R1A005JV	1,000	28	0.200 ±30%	1.390	45	2.1	44.6
SCT25XV-310-2R3A004JV	1,000	31	0.130 ±30%	0.950	45	2.3	42.1
SCT25XV-350-2R4A003JV	1,000	35	0.072 ±30%	0.650	45	2.4	47.6
SCF25XV-050-1R0A027JH	1,000	5	17.800 +50%, -30%	32.600	40	1.0	49.8
SCF25XV-070-1R1A022JH	1,000	7	11.800 +50%, -30%	21.350	50	1.1	49.2
SCF25XV-080-1R2A018JH	1,000	8	7.900 +50%, -30%	14.700	40	1.2	49.4
SCF25XV-100-1R3A016JH	1,000	10	6.300 +50%, -30%	11.100	45	1.3	50.7
SCF25XV-110-1R4A013JH	1,000	11	4.100 +50%, -30%	7.890	45	1.4	49.7
SCF25XV-130-1R5A012JH	1,000	13	3.500 +50%, -30%	6.430	45	1.5	51.3
SCF25XV-150-1R6A010JH	1,000	15	2.500 +50%, -30%	4.740	45	1.6	51.0
SCF25XV-170-1R7A009JH	1,000	17	2.000 +50%, -30%	3.830	50	1.7	51.2
SCF25XV-190-1R8A008JH	1,000	19	1.600 +50%, -30%	3.070	50	1.8	51.8
SCF25XV-220-1R9A007JH	1,000	22	1.200 +50%, -30%	2.450	50	1.9	50.6
SCF25XV-240-2R0A006JH	1,000	24	0.900 +50%, -30%	1.920	50	2.0	50.0
SCF25XV-280-2R1A005JH	1,000	28	0.600 +50%, -30%	1.440	45	2.1	48.9
SCF25XV-310-2R3A004JH	1,000	31	0.400 +50%, -30%	1.000	45	2.3	49.4
SCF25XV-350-2R4A003JH	1,000	35	0.220 +50%, -30%	0.700	45	2.4	46.8
SCR25XV-050-1R0A027JH	1,000	5	8.900 ±35%	32.600	40	1.0	47.1
SCR25XV-070-1R1A022JH	1,000	7	5.900 ±35%	21.350	50	1.1	47.1
SCR25XV-080-1R2A018JH	1,000	8	4.000 ±35%	14.700	40	1.2	47.3
SCR25XV-100-1R3A016JH	1,000	10	3.100 ±35%	11.100	45	1.3	48.1
SCR25XV-110-1R4A013JH	1,000	11	2.100 ±35%	7.890	45	1.4	47.3
SCR25XV-130-1R5A012JH	1,000	13	1.770 ±35%	6.430	45	1.5	49
SCR25XV-150-1R6A010JH	1,000	15	1.230 ±35%	4.740	45	1.6	47.9
SCR25XV-170-1R7A009JH	1,000	17	1.000 ±35%	3.830	50	1.7	48.8
SCR25XV-190-1R8A008JH	1,000	19	0.780 ±35%	3.070	50	1.8	48.7
SCR25XV-220-1R9A007JH	1,000	22	0.600 ±35%	2.450	50	1.9	48.6
SCR25XV-240-2R0A006JH	1,000	24	0.440 ±35%	1.920	50	2.0	48.1
SCR25XV-280-2R1A005JH	1,000	28	0.310 ±35%	1.440	45	2.1	46.2
SCR25XV-310-2R3A004JH	1,000	31	0.197 ±35%	1.000	45	2.3	46.2
SCR25XV-350-2R4A003JH	1,000	35	0.110 ±35%	0.700	45	2.4	43.5
SCT25XV-050-1R0A027JH	1,000	5	5.860 ±30%	32.600	40	1.0	47.3
SCT25XV-070-1R1A022JH	1,000	7	3.890 ±30%	21.350	50	1.1	47.2
SCT25XV-080-1R2A018JH	1,000	8	2.600 ±30%	14.700	40	1.2	47.3
SCT25XV-100-1R3A016JH	1,000	10	2.050 ±30%	11.100	45	1.3	48.3
SCT25XV-110-1R4A013JH	1,000	11	1.350 ±30%	7.890	45	1.4	47.4
SCT25XV-130-1R5A012JH	1,000	13	1.150 ±30%	6.430	45	1.5	48.9
SCT25XV-150-1R6A010JH	1,000	15	0.800 ±30%	4.740	45	1.6	48.1
SCT25XV-170-1R7A009JH	1,000	17	0.650 ±30%	3.830	50	1.7	48.6
SCT25XV-190-1R8A008JH	1,000	19	0.510 ±30%	3.070	50	1.8	48.8
SCT25XV-220-1R9A007JH	1,000	22	0.390 ±30%	2.450	50	1.9	48.6
SCT25XV-240-2R0A006JH	1,000	24	0.290 ±30%	1.920	50	2.0	48.2
SCT25XV-280-2R1A005JH	1,000	28	0.200 ±30%	1.440	45	2.1	45.7
SCT25XV-310-2R3A004JH	1,000	31	0.130 ±30%	1.000	45	2.3	45.7
SCT25XV-350-2R4A003JH	1,000	35	0.072 ±30%	0.700	45	2.4	43.4
Part Number	**Rated Voltage AC/DC (V)**	**Rated Current (A)**	**Inductance 100kHz (mH)**	**DC Resistance/Line (mΩ) ±13%**	**Temperature Rise (K) Reference**	**Wire Diameter (mm)**	**Weight (g) Approximate**

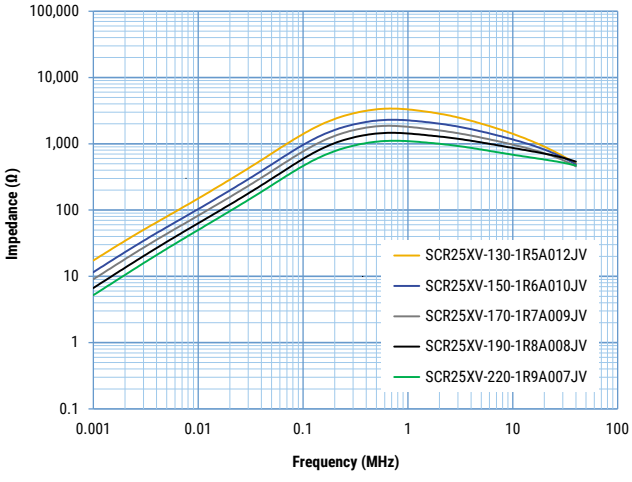
Frequency Characteristics

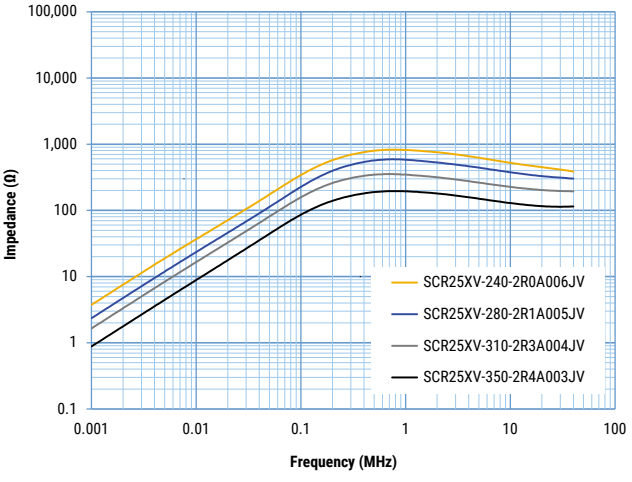




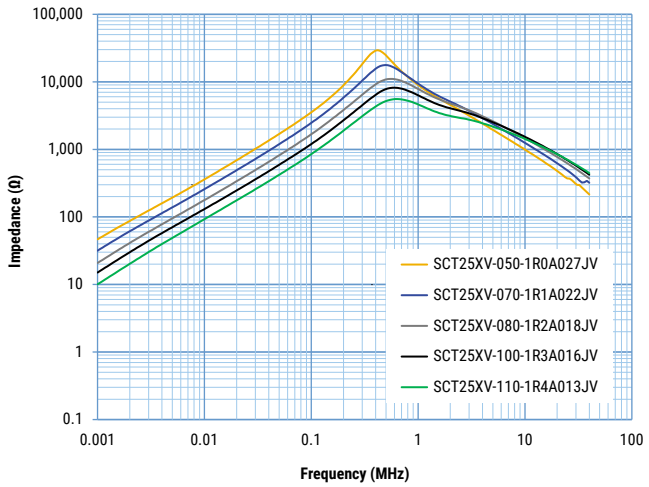


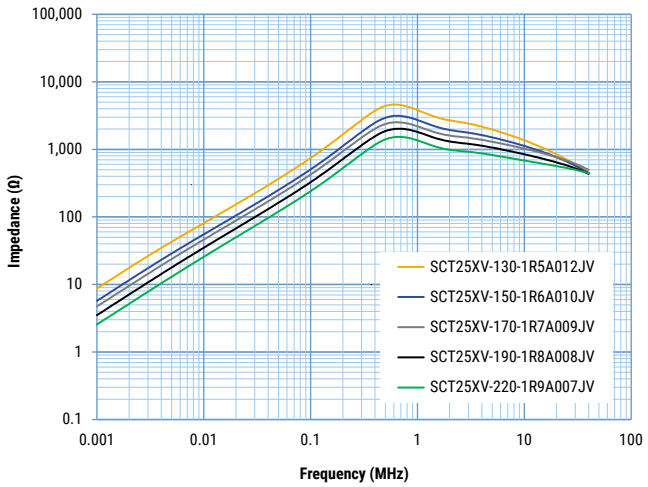


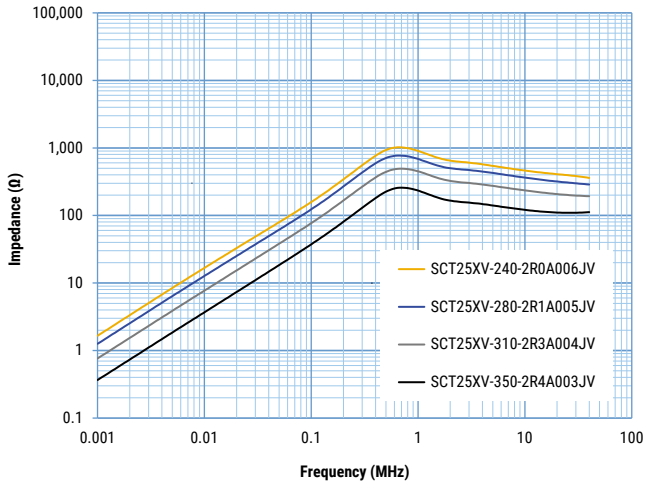


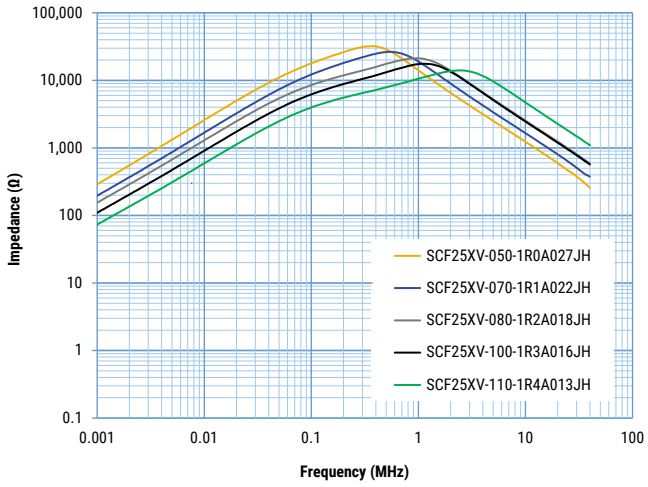


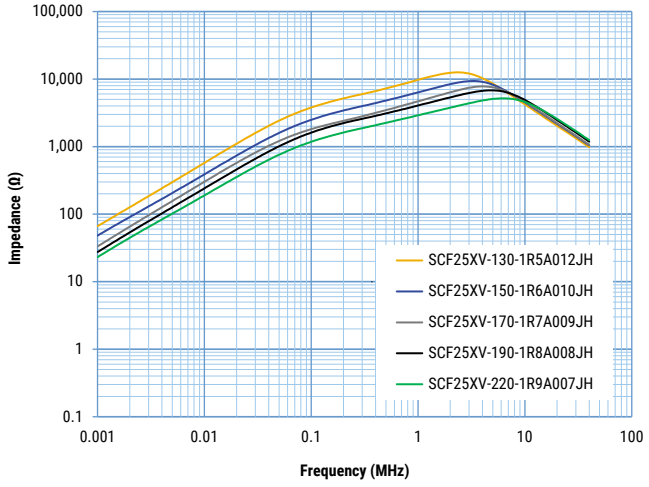
Frequency Characteristics cont.

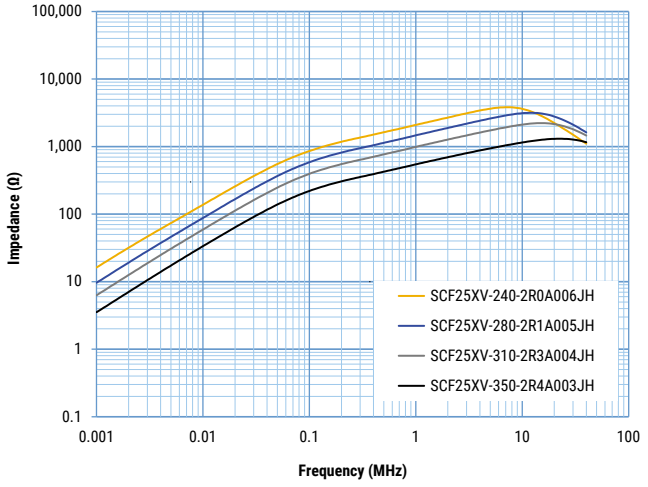




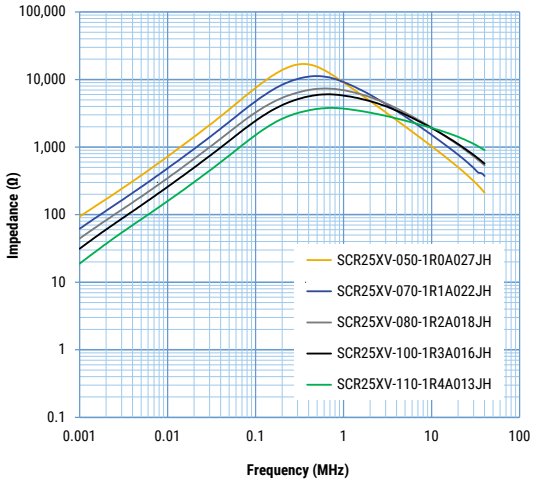


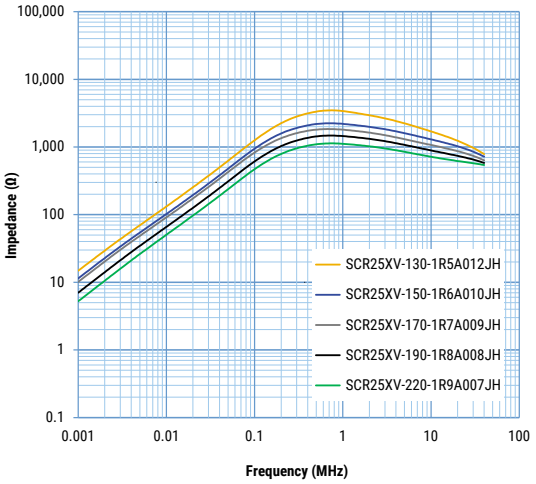


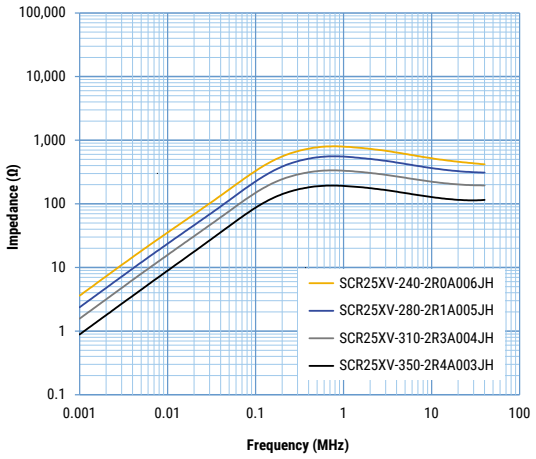


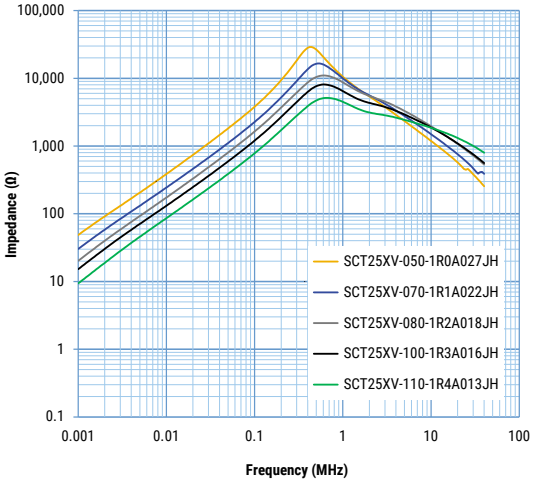


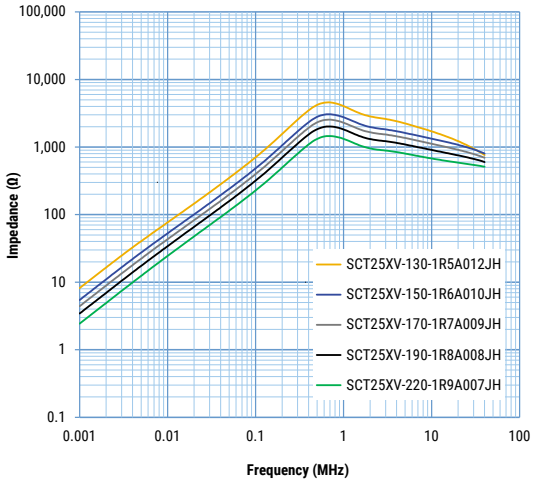
Frequency Characteristics cont.

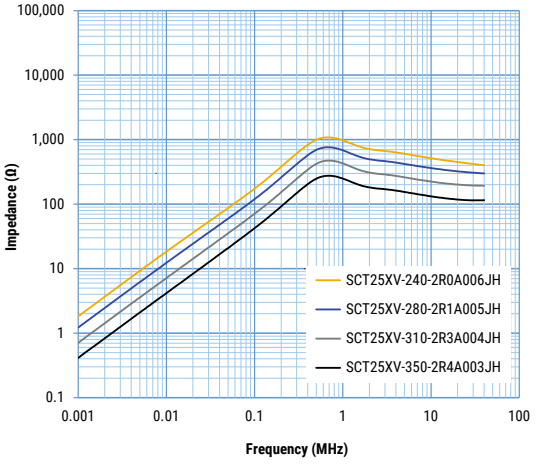












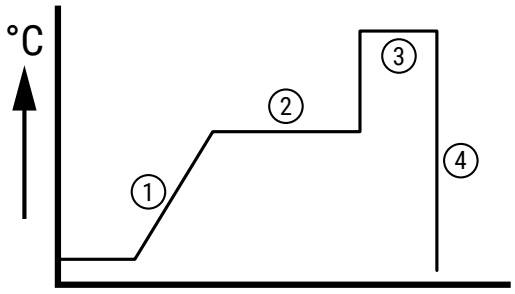
Packaging

Type	Packaging Type	Pieces Per Box
SCF25XV-JV	Tray	140
SCR25XV-JV		
SCT25XV-JV		
SCF25XV-JH		120
SCR25XV-JH		
SCT25XV-JH		

Recommend Solder Condition

Soldering method	Temperature	Soldering time	Number of times
Solder iron	400°C Max.	3sec. Max.	2 times
Dip soldering	260°C Max.	3sec. Max.	2 times
Flow soldering	see below	see below	see below

Flow Soldering Condition



① Reserve Temperature
② Preheat Temperature: 80~110°C Time: 120 seconds
③ Soak Temperature: 250°C Time: 8 seconds
④ Cooling

Solder conditions are for reference only and should be confirmed by the customer there is no problem.

Temperature Rise Measuring Method

Connect the cable to the CMC by soldering and cool it to room temperature. Also, N1 and N2 are shorted.
In order to prevent temperature changes due to air convections, a rated current is applied to the CMC inside the container (container size: about 550 x 450 x 300 mm).
At that time, the temperature of the inner diameter of the CMC and the ambient temperature are measured with a thermocouple and recorded with a data logger.

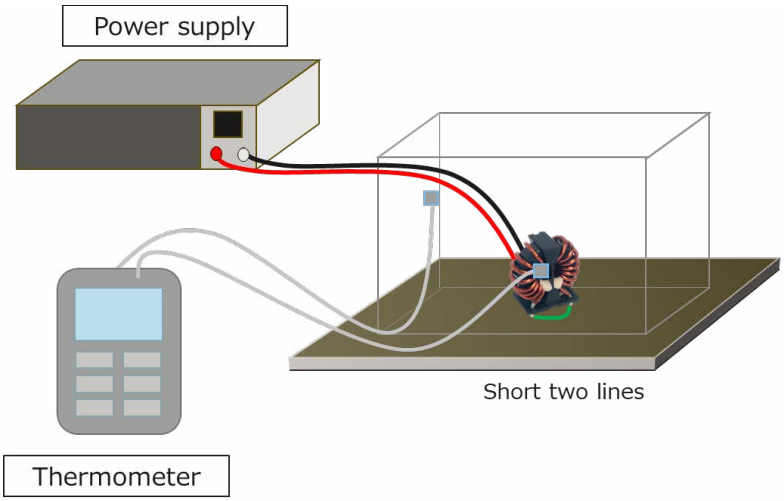


Figure 1 - Measurement system

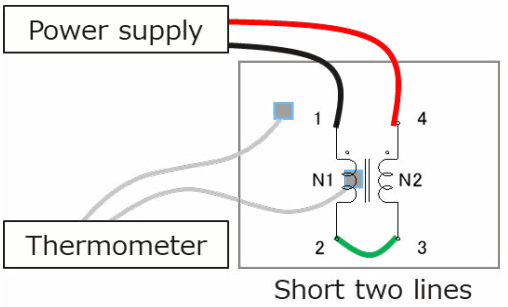


Figure 2 - Schematics

After confirming that the temperature of the CMC has stabilized, turn off the power and calculate the temperature rise value from the measured data using the following formula.

$T = (t2-t_{a2})-(t1-t_{a1})$

And then,

T : Temperature rising (°C)

t_1 : Initial temperature of CMC (°C)

t_2 : Temperature of CMC when current is applied (°C)

t_{a1} : Initial ambient temperature (°C)

t_{a2} : Ambient temperature when current is applied (°C)

AC Line Filters

Common Mode SCF29XV, SCR29XV & SCT29XV Coils, Automotive Grade

Overview

The KEMET SCF29XV, SCR29XV & SCT29XV coils are common mode chokes with a wide variety of characteristics for automotive and harsh environment industrial application. These toroidal coils are designed with nanocrystalline metal and Mn-Zn Ferrite cores and are useful in various noise countermeasure fields.

Applications

- On board charger for EV/PHEV
- Wireless charging systems with 85 kHz
- Medium power drives for steering, air conditioning and mild hybrid 48 V systems
- High voltage automotive and harsh environment industrial EMI filtering

Benefits

- Nanocrystalline metal core for SCF29XV
- Mn-Zn Ferrite S15H for SCR29XV
- Mn-Zn Ferrite 7HT for SCT29XV
- High rated voltage up to 1,000 V AC/DC
- Operating temperature range from -40°C to +150°C (SCF29XV & SCT29XV)
- Operating temperature range from -40°C to +120°C (SCR29XV)
- Ultra-high inductance for SCF29XV
- Ultra-high permeability for SCR29XV
- UL 94 V–0 flame retardant rated base and cap
- AEC-Q200 qualified

SC29XV-JV

SC29XV-JH

Part Number System

SC	F	29X	V	080-		1R0	A	011	JV
Series	Core material Code	"Dimension Code (See Dimensions)"	Automotive Grade	"Rated Current (A)"	Phase	"Wire Diameter (mm)"	Windings	Number of Turns	Terminal Base Type
SC	"F = Nanocrystal core R = Mn-Zn Ferrite core S15H T = Mn-Zn Ferrite core 7HT"	29X	V = AEC-Q200 qualified	"xxx- = xx.x A Examples: 080 = 8.0 A 200 = 20.0 A"	Blank = Single-phase	"R = Decimal point Examples: 1R0 = 1.0 mm 2R4 = 2.4 mm"	A = Single	"00x = x turns 0xx = xx turns Examples: 005 = 5 turns 011 = 11 turns"	"JV = Vertical type JH = Horizontal type"

Magnetic Permeability of Ferrite Material

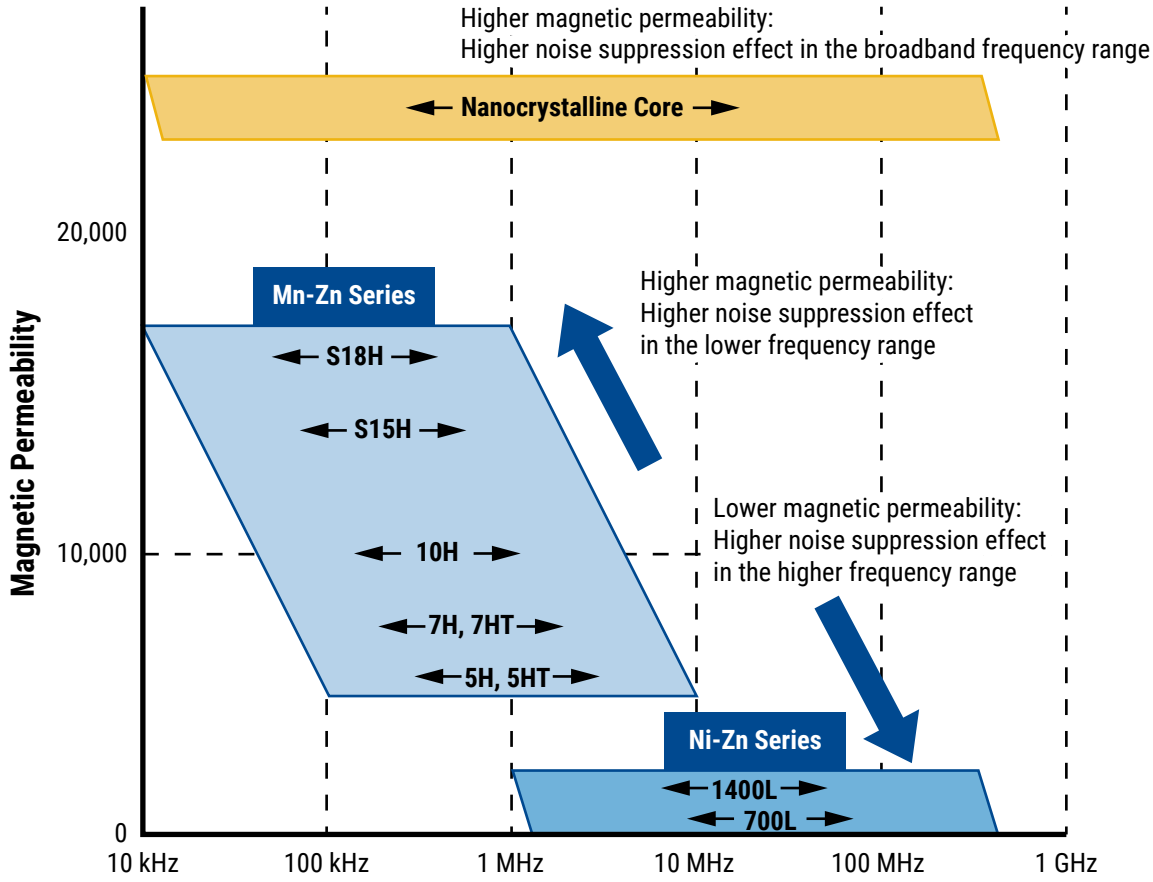
In order to achieve efficient noise reduction, it is important to select the material according to the target frequency band. Depending on its magnetic permeability, a particular ferrite material or metal material will be effective in a certain frequency band. A schematic representation of the relationship between the magnetic permeability of each material and the corresponding effective band range is shown in Figure 1.

Materials with higher magnetic permeability are effective in the lower frequency range, while those with lower magnetic permeability are effective in the higher frequency range. Thus, Mn-Zn products are mainly used for reducing conduction noise, while Ni-Zn products are commonly used for radiation noise countermeasures. Metal materials, however, are effective throughout the broadband frequency range, in low as well as high frequencies.

The effective frequency range varies depending on core shape, size, and number of windings. This frequency dependence of the magnetic permeability as shown in the figure serves for reference purposes only. It should be tested on the actual device to determine its effectiveness.

S18H, S15H, 10H, 7H, 7HT, 5H, 5HT, 1400L, and 700L are KEMET's proprietary ferrite material names. Other materials are available upon request.

Figure 1 - Relationship between the magnetic permeability of each material and its effective frequency range



Dimensions – Millimeters

Figure 1

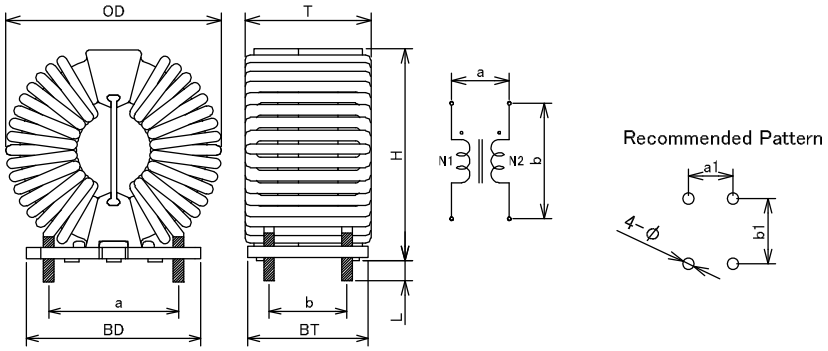
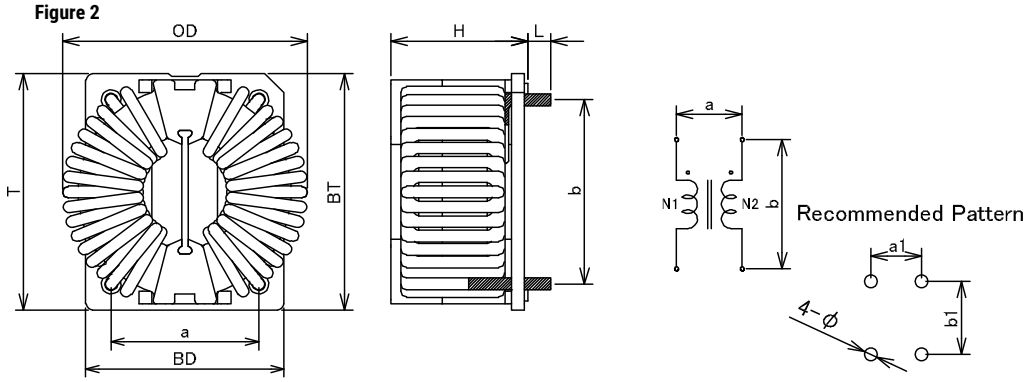


Figure 2



Part Type	Dimensions (mm)				Base Dimensions[2]		Pin Pitch[3]		Recommended Hole Pattern[4]			Figure
	OD (Maximum)	T (Maximum)	H [1]	L	BD	BT	a	b	a1	b1	φ	
SCF29XV-050-1R0A044JV	39.0	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	1.4	Fig. 1
SCF29XV-060-1R1A036JV	39.0	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	1.5	Fig. 1
SCF29XV-070-1R2A030JV	39.0	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	1.6	Fig. 1
SCF29XV-080-1R3A026JV	39.0	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	1.7	Fig. 1
SCF29XV-090-1R4A022JV	39.0	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	1.8	Fig. 1
SCF29XV-110-1R5A019JV	40.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.0	Fig. 1
SCF29XV-120-1R6A017JV	40.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.1	Fig. 1
SCF29XV-150-1R7A015JV	40.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.2	Fig. 1
SCF29XV-180-1R8A013JV	40.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.4	Fig. 1
SCF29XV-190-1R9A012JV	41.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.5	Fig. 1
SCF29XV-200-2R0A011JV	41.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.6	Fig. 1
SCF29XV-210-2R1A010JV	41.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.7	Fig. 1
SCF29XV-250-2R2A008JV	41.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.9	Fig. 1
SCF29XV-270-2R3A006JV	41.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	3.0	Fig. 1
SCF29XV-300-2R4A005JV	41.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	3.1	Fig. 1

[1] We do not inspect the lower limit dimension. (design guarantee)

[2] We do not inspect the terminal base dimension. (design guarantee)

[3] Inspection by using pin-pitch gauge.

[4] Implementation conditions, please confirm that there is no pre-problem.

Dimensions – Millimeters cont.

Part Type	Dimensions (mm)				Base Dimensions[2]		Pin Pitch[3]		Recommended Hole Pattern[4]			Figure
	OD (Maximum)	T (Maximum)	H [1]	L	BD	BT	a	b	a1	b1	φ	
SCR29XV-050-1R0A044JV	39.0	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	1.4	Fig. 1
SCR29XV-060-1R1A036JV	39.0	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	1.5	Fig. 1
SCR29XV-070-1R2A030JV	39.0	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	1.6	Fig. 1
SCR29XV-080-1R3A026JV	39.0	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	1.7	Fig. 1
SCR29XV-090-1R4A022JV	39.0	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	1.8	Fig. 1
SCR29XV-110-1R5A019JV	40.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.0	Fig. 1
SCR29XV-120-1R6A017JV	40.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.1	Fig. 1
SCR29XV-150-1R7A015JV	40.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.2	Fig. 1
SCR29XV-180-1R8A013JV	40.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.4	Fig. 1
SCR29XV-190-1R9A012JV	41.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.5	Fig. 1
SCR29XV-200-2R0A011JV	41.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.6	Fig. 1
SCR29XV-210-2R1A010JV	41.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.7	Fig. 1
SCR29XV-250-2R2A008JV	41.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.9	Fig. 1
SCR29XV-270-2R3A006JV	41.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	3.0	Fig. 1
SCR29XV-300-2R4A005JV	41.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	3.1	Fig. 1
SCT29XV-050-1R0A044JV	39.0	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	1.4	Fig. 1
SCT29XV-060-1R1A036JV	39.0	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	1.5	Fig. 1
SCT29XV-070-1R2A030JV	39.0	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	1.6	Fig. 1
SCT29XV-080-1R3A026JV	39.0	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	1.7	Fig. 1
SCT29XV-090-1R4A022JV	39.0	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	1.8	Fig. 1
SCT29XV-110-1R5A019JV	40.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.0	Fig. 1
SCT29XV-120-1R6A017JV	40.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.1	Fig. 1
SCT29XV-150-1R7A015JV	40.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.2	Fig. 1
SCT29XV-180-1R8A013JV	40.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.4	Fig. 1
SCT29XV-190-1R9A012JV	41.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.5	Fig. 1
SCT29XV-200-2R0A011JV	41.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.6	Fig. 1
SCT29XV-210-2R1A010JV	41.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.7	Fig. 1
SCT29XV-250-2R2A008JV	41.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	2.9	Fig. 1
SCT29XV-270-2R3A006JV	41.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	3.0	Fig. 1
SCT29XV-300-2R4A005JV	41.5	21.4	36.70 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	20.85 ±0.5	22.5 ±0.5	13.5 ±0.5	22.5	13.5	3.1	Fig. 1
SCF29XV-050-1R0A044JH	39.0	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	1.4	Fig. 2
SCF29XV-060-1R1A036JH	39.0	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	1.5	Fig. 2
SCF29XV-070-1R2A030JH	39.0	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	1.6	Fig. 2
SCF29XV-080-1R3A026JH	39.0	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	1.7	Fig. 2
SCF29XV-090-1R4A022JH	39.0	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	1.8	Fig. 2
SCF29XV-110-1R5A019JH	40.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.0	Fig. 2
SCF29XV-120-1R6A017JH	40.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.1	Fig. 2
SCF29XV-150-1R7A015JH	40.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.2	Fig. 2
SCF29XV-180-1R8A013JH	40.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.4	Fig. 2
SCF29XV-190-1R9A012JH	41.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.5	Fig. 2
SCF29XV-200-2R0A011JH	41.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.6	Fig. 2
SCF29XV-210-2R1A010JH	41.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.7	Fig. 2
SCF29XV-250-2R2A008JH	41.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.9	Fig. 2
SCF29XV-270-2R3A006JH	41.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	3.0	Fig. 2
SCF29XV-300-2R4A005JH	41.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	3.1	Fig. 2

[1] We do not inspect the lower limit dimension. (design guarantee)

[2] We do not inspect the terminal base dimension. (design guarantee)

[3] Inspection by using pin-pitch gauge.

[4] Implementation conditions, please confirm that there is no pre-problem.

Dimensions – Millimeters cont.

Part Type	Dimensions (mm)				Base Dimensions[2]		Pin Pitch[3]		Recommended Hole Pattern[4]			Figure
	OD (Maximum)	T (Maximum)	H [1]	L	BD	BT	a	b	a1	b1	φ	
SCR29XV-050-1R0A044JH	39.0	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	1.4	Fig. 2
SCR29XV-060-1R1A036JH	39.0	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	1.5	Fig. 2
SCR29XV-070-1R2A030JH	39.0	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	1.6	Fig. 2
SCR29XV-080-1R3A026JH	39.0	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	1.7	Fig. 2
SCR29XV-090-1R4A022JH	39.0	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	1.8	Fig. 2
SCR29XV-110-1R5A019JH	40.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.0	Fig. 2
SCR29XV-120-1R6A017JH	40.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.1	Fig. 2
SCR29XV-150-1R7A015JH	40.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.2	Fig. 2
SCR29XV-180-1R8A013JH	40.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.4	Fig. 2
SCR29XV-190-1R9A012JH	41.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.5	Fig. 2
SCR29XV-200-2R0A011JH	41.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.6	Fig. 2
SCR29XV-210-2R1A010JH	41.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.7	Fig. 2
SCR29XV-250-2R2A008JH	41.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.9	Fig. 2
SCR29XV-270-2R3A006JH	41.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	3.0	Fig. 2
SCR29XV-300-2R4A005JH	41.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	3.1	Fig. 2
SCT29XV-050-1R0A044JH	39.0	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	1.4	Fig. 2
SCT29XV-060-1R1A036JH	39.0	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	1.5	Fig. 2
SCT29XV-070-1R2A030JH	39.0	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	1.6	Fig. 2
SCT29XV-080-1R3A026JH	39.0	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	1.7	Fig. 2
SCT29XV-090-1R4A022JH	39.0	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	1.8	Fig. 2
SCT29XV-110-1R5A019JH	40.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.0	Fig. 2
SCT29XV-120-1R6A017JH	40.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.1	Fig. 2
SCT29XV-150-1R7A015JH	40.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.2	Fig. 2
SCT29XV-180-1R8A013JH	40.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.4	Fig. 2
SCT29XV-190-1R9A012JH	41.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.5	Fig. 2
SCT29XV-200-2R0A011JH	41.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.6	Fig. 2
SCT29XV-210-2R1A010JH	41.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.7	Fig. 2
SCT29XV-250-2R2A008JH	41.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	2.9	Fig. 2
SCT29XV-270-2R3A006JH	41.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	3.0	Fig. 2
SCT29XV-300-2R4A005JH	41.5	37.2	20.90 +1.0/-0.6	3.50 ±0.5	30.20 ±0.5	36.70 ±0.5	22.5 ±0.5	28.5 ±0.5	22.5	28.5	3.1	Fig. 2

[1] We do not inspect the lower limit dimension. (design guarantee)
[2] We do not inspect the terminal base dimension. (design guarantee)
[3] Inspection by using pin-pitch gauge.
[4] Implementation conditions, please confirm that there is no pre-problem.

Environmental Compliance

All KEMET AC line filters are RoHS Compliant.

Performance Characteristics

Item	Performance Characteristics
Rated Voltage	1,000 VAC/VDC
Withstanding Voltage	2,400 VAC (2 seconds, between lines)
Insulation Resistance	> 100 MΩ at 1,000 VDC (between lines)
Rated Current Range	5 – 30 A
Rated Inductance Range	0.270 - 21.200 mH +50%, -30% for SCF29XV type 0.153 - 11.800 mH ±35% for SCR29XV type 0.083 - 6.470 mH ±30% for SCT29XV type
Inductance Measurement Condition	100 kHz
Operating Temperature Range	-40°C to +150°C (include self temperature rise) for SCF29XV & SCT29XV type -40°C to +120°C (include self temperature rise) for SCR29XV type

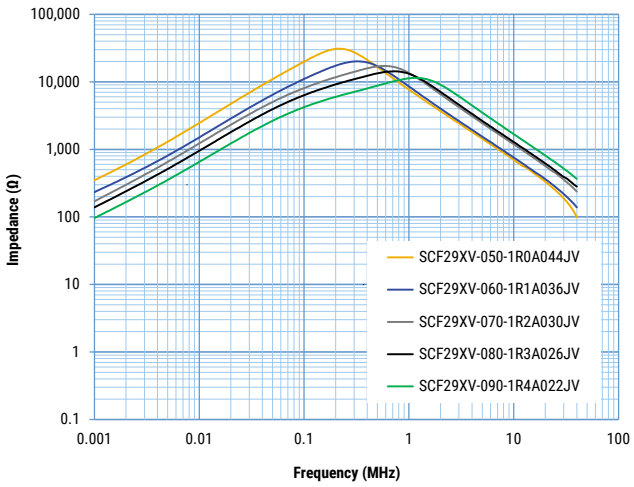
Table 1 – Ratings & Part Number Reference

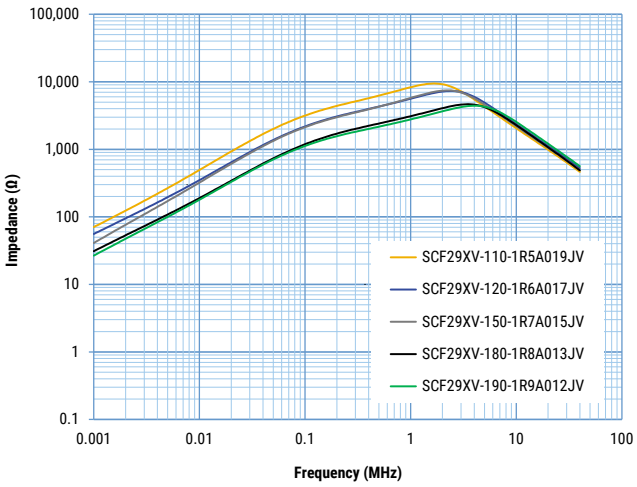
Part Number	Rated Voltage AC/DC (V)	Rated Current (A)	Inductance 100kHz (mH)	DC Resistance/ Line (mΩ) ±13%	Temperature Rise (K) Reference	Wire Diameter (mm)	Weight (g) Approximate
SCF29XV-050-1R0A044JV	1,000	5	21.200 +50%, -30%	40.300	45	1.0	47.2
SCF29XV-060-1R1A036JV	1,000	6	14.200 +50%, -30%	27.200	45	1.1	47.8
SCF29XV-070-1R2A030JV	1,000	7	9.900 +50%, -30%	19.200	40	1.2	47.3
SCF29XV-080-1R3A026JV	1,000	8	7.400 +50%, -30%	14.200	40	1.3	47.9
SCF29XV-090-1R4A022JV	1,000	9	5.300 +50%, -30%	10.200	35	1.4	48.2
SCF29XV-110-1R5A019JV	1,000	11	4.000 +50%, -30%	8.000	40	1.5	48.6
SCF29XV-120-1R6A017JV	1,000	12	3.200 +50%, -30%	6.430	35	1.6	49.0
SCF29XV-150-1R7A015JV	1,000	15	2.500 +50%, -30%	5.040	45	1.7	49.5
SCF29XV-180-1R8A013JV	1,000	18	1.900 +50%, -30%	3.990	50	1.8	48.8
SCF29XV-190-1R9A012JV	1,000	19	1.600 +50%, -30%	3.280	45	1.9	49.5
SCF29XV-200-2R0A011JV	1,000	20	1.300 +50%, -30%	2.730	40	2.0	50.8
SCF29XV-210-2R1A010JV	1,000	21	1.100 +50%, -30%	2.300	40	2.1	51.5
SCF29XV-250-2R2A008JV	1,000	25	0.700 +50%, -30%	1.680	40	2.2	47.0
SCF29XV-270-2R3A006JV	1,000	27	0.400 +50%, -30%	1.190	35	2.3	43.8
SCF29XV-300-2R4A005JV	1,000	30	0.270 +50%, -30%	0.930	35	2.4	43.0
SCR29XV-050-1R0A044JV	1,000	5	11.800 ±35%	40.300	45	1.0	44.7
SCR29XV-060-1R1A036JV	1,000	6	7.900 ±35%	27.200	45	1.1	45.0
SCR29XV-070-1R2A030JV	1,000	7	5.500 ±35%	19.200	40	1.2	45.1
SCR29XV-080-1R3A026JV	1,000	8	4.150 ±35%	14.200	40	1.3	45.4
SCR29XV-090-1R4A022JV	1,000	9	2.950 ±35%	10.200	35	1.4	45.6
SCR29XV-110-1R5A019JV	1,000	11	2.200 ±35%	8.000	40	1.5	45.8
SCR29XV-120-1R6A017JV	1,000	12	1.760 ±35%	6.430	35	1.6	46.3
SCR29XV-150-1R7A015JV	1,000	15	1.370 ±35%	5.040	45	1.7	46.7
SCR29XV-180-1R8A013JV	1,000	18	1.040 ±35%	3.990	50	1.8	46.4
SCR29XV-190-1R9A012JV	1,000	19	0.880 ±35%	3.280	45	1.9	47.5
SCR29XV-200-2R0A011JV	1,000	20	0.740 ±35%	2.730	40	2.0	48.4
SCR29XV-210-2R1A010JV	1,000	21	0.610 ±35%	2.300	40	2.1	49.1
SCR29XV-250-2R2A008JV	1,000	25	0.390 ±35%	1.680	40	2.2	45.1
SCR29XV-270-2R3A006JV	1,000	27	0.220 ±35%	1.190	35	2.3	41.1
SCR29XV-300-2R4A005JV	1,000	30	0.153 ±35%	0.930	35	2.4	39.8
SCT29XV-050-1R0A044JV	1,000	5	6.470 ±30%	40.300	45	1.0	44.1
SCT29XV-060-1R1A036JV	1,000	6	4.330 ±30%	27.200	45	1.1	44.8
SCT29XV-070-1R2A030JV	1,000	7	3.000 ±30%	19.200	40	1.2	44.4
SCT29XV-080-1R3A026JV	1,000	8	2.260 ±30%	14.200	40	1.3	45.0
SCT29XV-090-1R4A022JV	1,000	9	1.620 ±30%	10.200	35	1.4	45.2
SCT29XV-110-1R5A019JV	1,000	11	1.210 ±30%	8.000	40	1.5	45.2
SCT29XV-120-1R6A017JV	1,000	12	0.960 ±30%	6.430	35	1.6	46.3
SCT29XV-150-1R7A015JV	1,000	15	0.750 ±30%	5.040	45	1.7	46.5
SCT29XV-180-1R8A013JV	1,000	18	0.560 ±30%	3.990	50	1.8	46.1
SCT29XV-190-1R9A012JV	1,000	19	0.480 ±30%	3.280	45	1.9	47.1
SCT29XV-200-2R0A011JV	1,000	20	0.400 ±30%	2.730	40	2.0	48.0
SCT29XV-210-2R1A010JV	1,000	21	0.330 ±30%	2.300	40	2.1	48.3
SCT29XV-250-2R2A008JV	1,000	25	0.210 ±30%	1.680	40	2.2	44.7
SCT29XV-270-2R3A006JV	1,000	27	0.120 ±30%	1.190	35	2.3	41.4
SCT29XV-300-2R4A005JV	1,000	30	0.083 ±30%	0.930	35	2.4	39.5
SCF29XV-050-1R0A044JH	1,000	5	21.200 +50%, -30%	39.900	45	1.0	47.8
SCF29XV-060-1R1A036JH	1,000	6	14.200 +50%, -30%	27.400	45	1.1	48.5
SCF29XV-070-1R2A030JH	1,000	7	9.900 +50%, -30%	19.200	40	1.2	48.1
SCF29XV-080-1R3A026JH	1,000	8	7.400 +50%, -30%	14.200	40	1.3	49.0
SCF29XV-090-1R4A022JH	1,000	9	5.300 +50%, -30%	10.600	35	1.4	49.3
SCF29XV-110-1R5A019JH	1,000	11	4.000 +50%, -30%	8.070	40	1.5	49.6
SCF29XV-120-1R6A017JH	1,000	12	3.200 +50%, -30%	6.450	35	1.6	50.2
SCF29XV-150-1R7A015JH	1,000	15	2.500 +50%, -30%	5.140	45	1.7	50.7
SCF29XV-180-1R8A013JH	1,000	18	1.900 +50%, -30%	4.100	50	1.8	49.5
SCF29XV-190-1R9A012JH	1,000	19	1.600 +50%, -30%	3.350	45	1.9	51.5
SCF29XV-200-2R0A011JH	1,000	20	1.300 +50%, -30%	2.840	40	2.0	52.1
SCF29XV-210-2R1A010JH	1,000	21	1.100 +50%, -30%	2.330	40	2.1	53.2
SCF29XV-250-2R2A008JH	1,000	25	0.700 +50%, -30%	1.680	40	2.2	49.4
SCF29XV-270-2R3A006JH	1,000	27	0.400 +50%, -30%	1.180	35	2.3	45.1
SCF29XV-300-2R4A005JH	1,000	30	0.270 +50%, -30%	0.920	35	2.4	44.3
Part Number	**Rated Voltage AC/DC (V)**	**Rated Current (A)**	**Inductance 100kHz (mH)**	**DC Resistance/Line (mΩ) ±13%**	**Temperature Rise (K) Reference**	**Wire Diameter (mm)**	**Weight (g) Approximate**

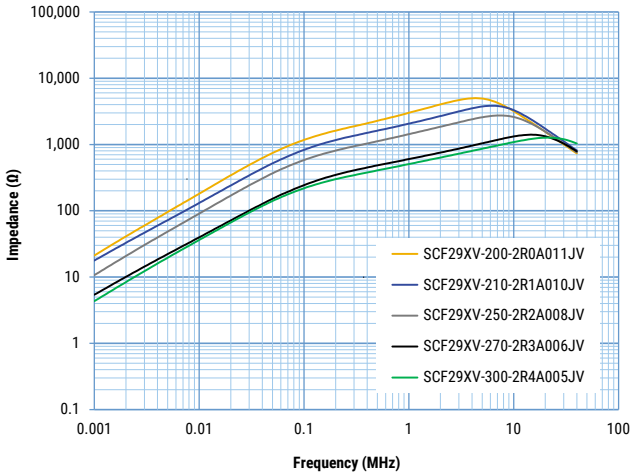
Table 1 – Ratings & Part Number Reference cont.

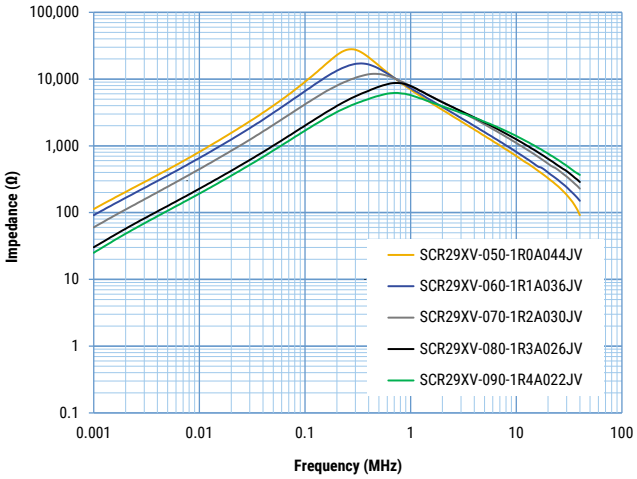
Part Number	Rated Voltage AC/DC (V)	Rated Current (A)	Inductance 100kHz (mH)	DC Resistance/ Line (mΩ) ±13%	Temperature Rise (K) Reference	Wire Diameter (mm)	Weight (g) Approximate
SCR29XV-050-1R0A044JH	1,000	5	11.800 ±35%	39.900	45	1.0	45.4
SCR29XV-060-1R1A036JH	1,000	6	7.900 ±35%	27.400	45	1.1	46.2
SCR29XV-070-1R2A030JH	1,000	7	5.500 ±35%	19.200	40	1.2	46.1
SCR29XV-080-1R3A026JH	1,000	8	4.150 ±35%	14.200	40	1.3	46.8
SCR29XV-090-1R4A022JH	1,000	9	2.950 ±35%	10.600	35	1.4	46.8
SCR29XV-110-1R5A019JH	1,000	11	2.200 ±35%	8.070	40	1.5	47.2
SCR29XV-120-1R6A017JH	1,000	12	1.760 ±35%	6.450	35	1.6	47.6
SCR29XV-150-1R7A015JH	1,000	15	1.370 ±35%	5.140	45	1.7	48.0
SCR29XV-180-1R8A013JH	1,000	18	1.040 ±35%	4.100	50	1.8	47.6
SCR29XV-190-1R9A012JH	1,000	19	0.880 ±35%	3.350	45	1.9	48.9
SCR29XV-200-2R0A011JH	1,000	20	0.740 ±35%	2.840	40	2.0	49.6
SCR29XV-210-2R1A010JH	1,000	21	0.610 ±35%	2.330	40	2.1	50.0
SCR29XV-250-2R2A008JH	1,000	25	0.390 ±35%	1.680	40	2.2	46.2
SCR29XV-270-2R3A006JH	1,000	27	0.220 ±35%	1.180	35	2.3	42.1
SCR29XV-300-2R4A005JH	1,000	30	0.153 ±35%	0.920	35	2.4	40.9
SCT29XV-050-1R0A044JH	1,000	5	6.470 ±30%	39.900	45	1.0	45.0
SCT29XV-060-1R1A036JH	1,000	6	4.330 ±30%	27.400	45	1.1	45.7
SCT29XV-070-1R2A030JH	1,000	7	3.000 ±30%	19.200	40	1.2	45.6
SCT29XV-080-1R3A026JH	1,000	8	2.260 ±30%	14.200	40	1.3	46.2
SCT29XV-090-1R4A022JH	1,000	9	1.620 ±30%	10.600	35	1.4	46.3
SCT29XV-110-1R5A019JH	1,000	11	1.210 ±30%	8.070	40	1.5	46.7
SCT29XV-120-1R6A017JH	1,000	12	0.960 ±30%	6.450	35	1.6	47.6
SCT29XV-150-1R7A015JH	1,000	15	0.750 ±30%	5.140	45	1.7	47.6
SCT29XV-180-1R8A013JH	1,000	18	0.560 ±30%	4.100	50	1.8	47.7
SCT29XV-190-1R9A012JH	1,000	19	0.480 ±30%	3.350	45	1.9	48.6
SCT29XV-200-2R0A011JH	1,000	20	0.400 ±30%	2.840	40	2.0	49.4
SCT29XV-210-2R1A010JH	1,000	21	0.330 ±30%	2.330	40	2.1	49.6
SCT29XV-250-2R2A008JH	1,000	25	0.210 ±30%	1.680	40	2.2	45.9
SCT29XV-270-2R3A006JH	1,000	27	0.120 ±30%	1.180	35	2.3	41.9
SCT29XV-300-2R4A005JH	1,000	30	0.083 ±30%	0.920	35	2.4	40.4
Part Number	**Rated Voltage AC/DC (V)**	**Rated Current (A)**	**Inductance 100kHz (mH)**	**DC Resistance/Line (mΩ) ±13%**	**Temperature Rise (K) Reference**	**Wire Diameter (mm)**	**Weight (g) Approximate**

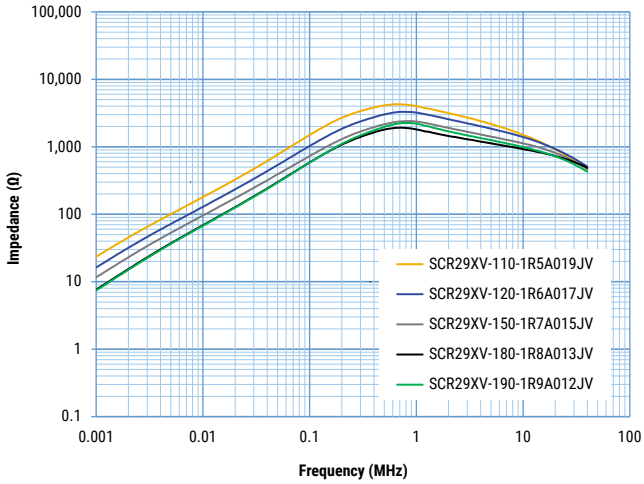
Frequency Characteristics

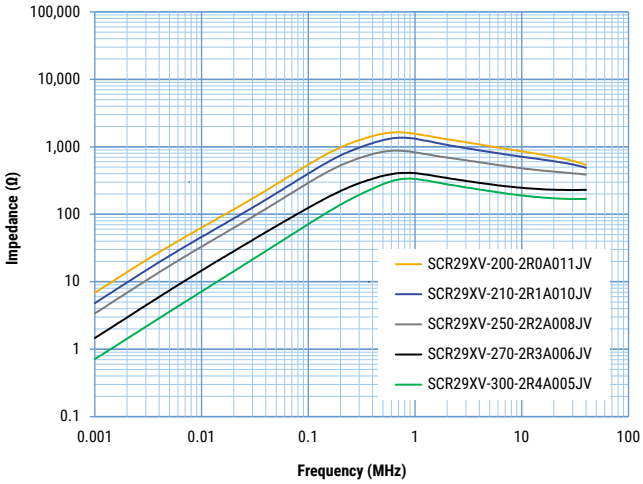




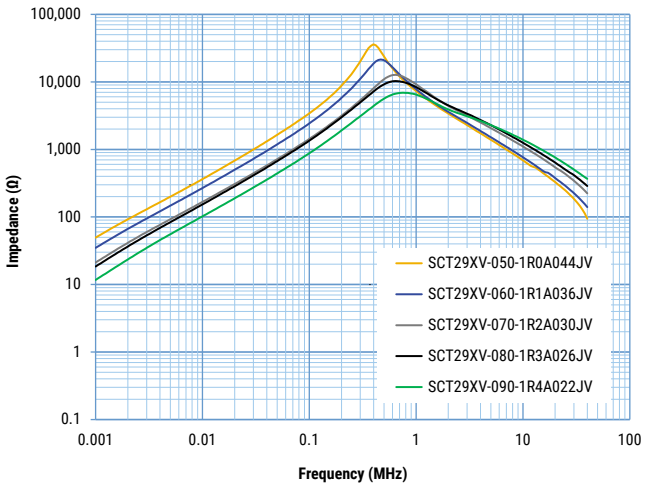


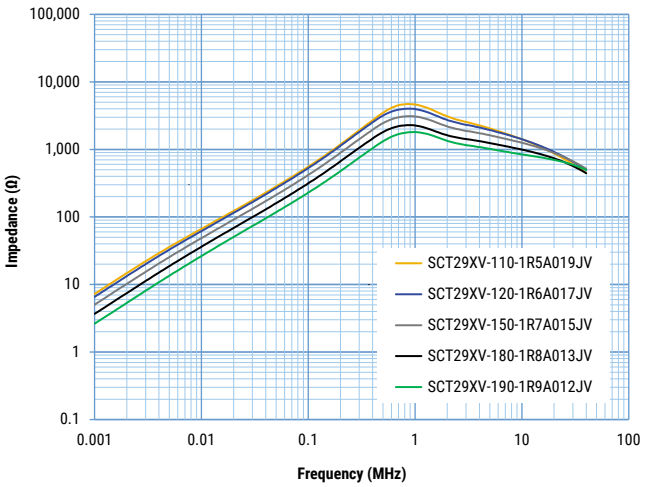


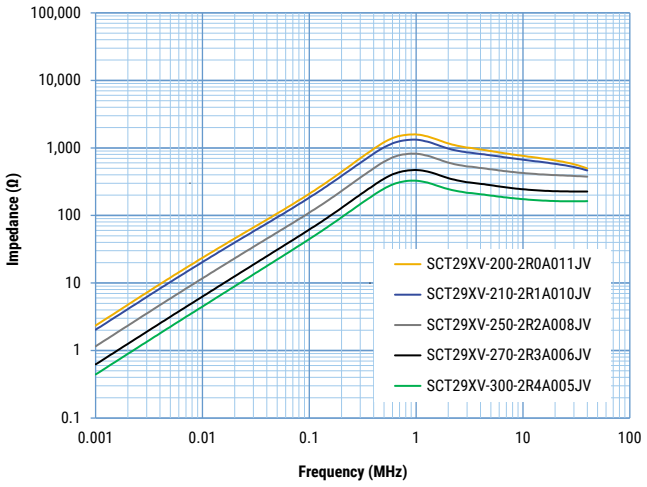


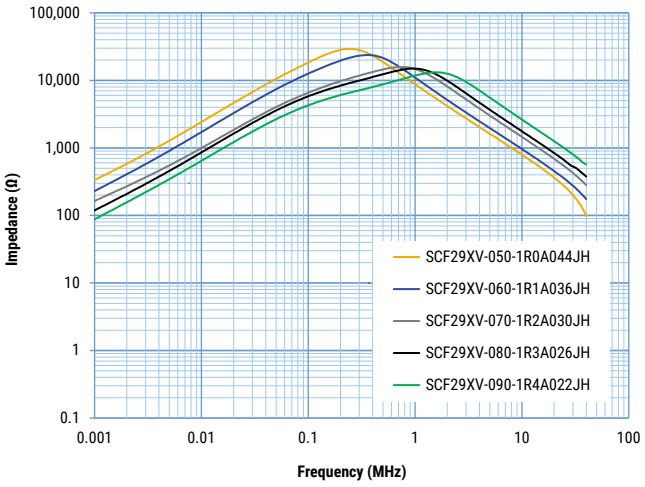


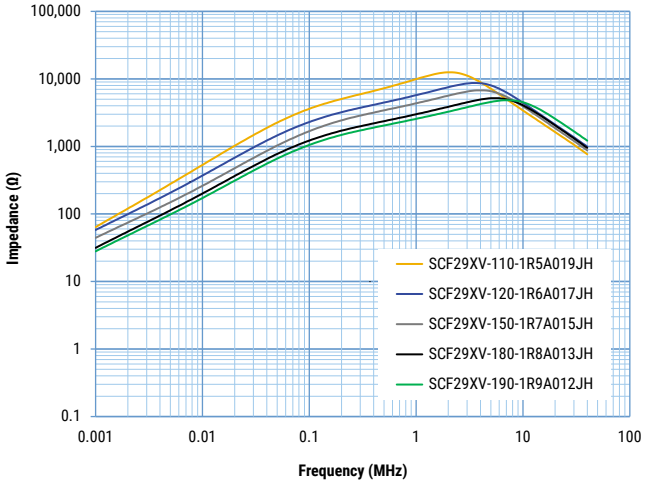
Frequency Characteristics cont.

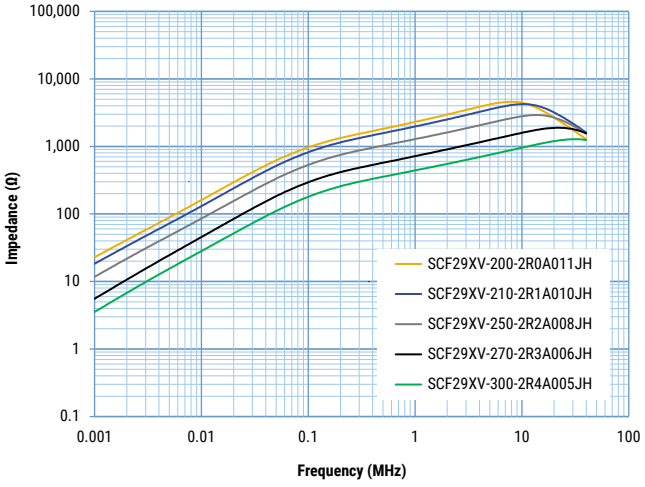




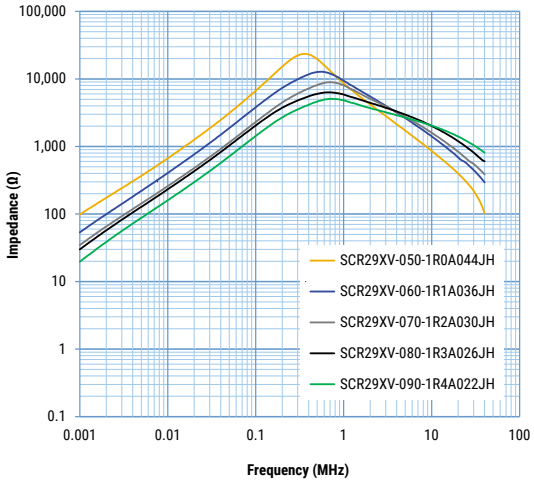


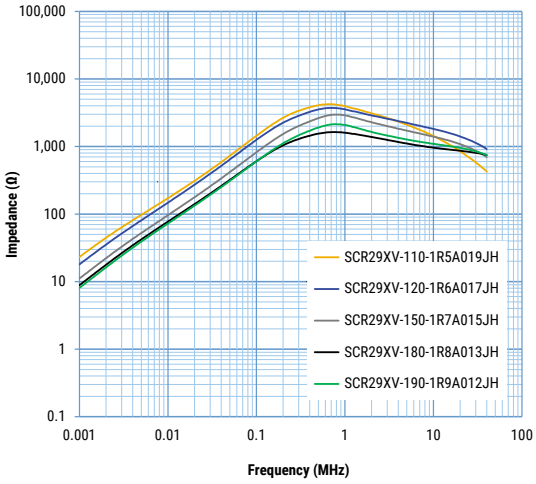


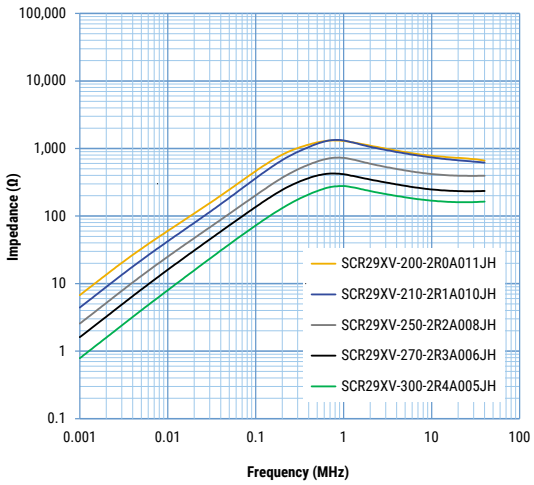


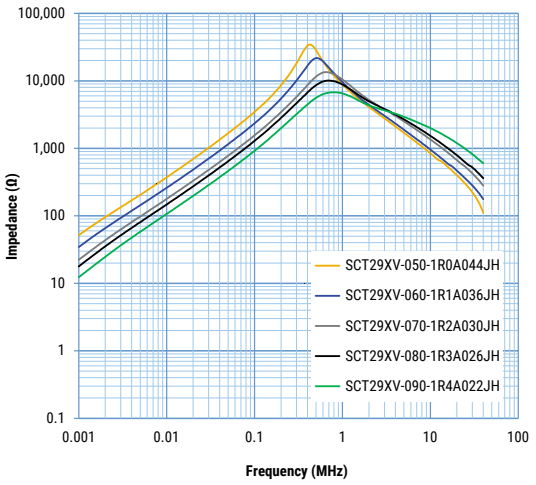


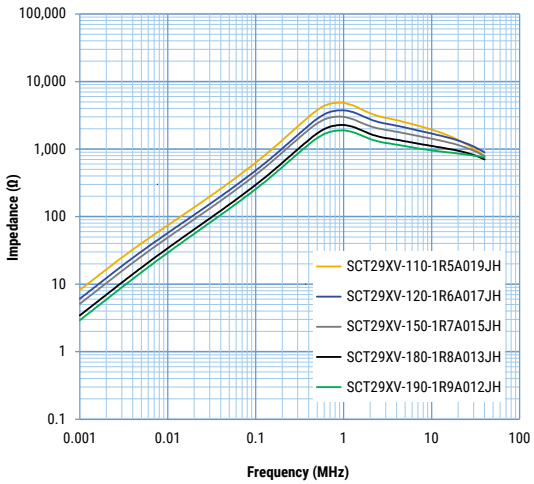
Frequency Characteristics cont.

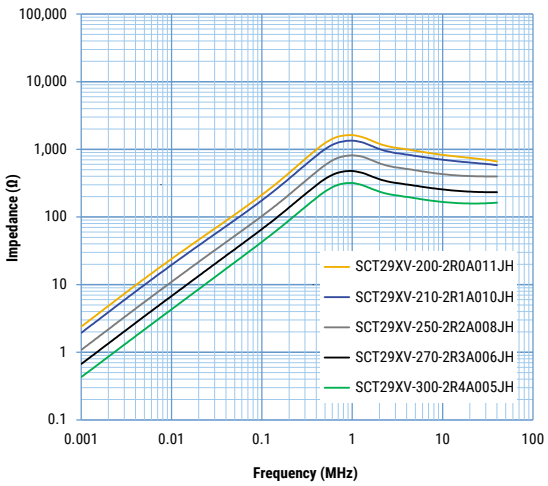












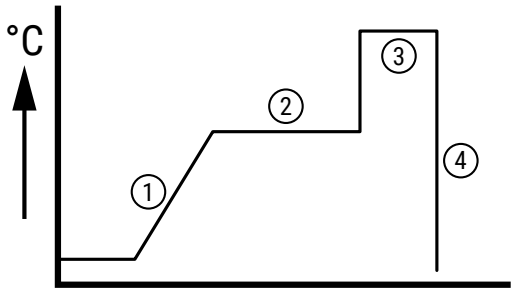
Packaging

Type	Packaging Type	Pieces Per Box
SCF29XV-JV	Tray	120
SCR29XV-JV		
SCT29XV-JV		
SCF29XV-JH		80
SCR29XV-JH		
SCT29XV-JH		

Recommend Solder Condition

Soldering method	Temperature	Soldering time	Number of times
Solder iron	400°C Max.	3sec. Max.	2 times
Dip soldering	260°C Max.	3sec. Max.	2 times
Flow soldering	see below	see below	see below

Flow Soldering Condition



① Reserve Temperature
② Preheat Temperature: 80~110°C Time: 120 seconds
③ Soak Temperature: 250°C Time: 8 seconds
④ Cooling

Solder conditions are for reference only and should be confirmed by the customer there is no problem.

Temperature Rise Measuring Method

Connect the cable to the CMC by soldering and cool it to room temperature. Also, N1 and N2 are shorted.
In order to prevent temperature changes due to air convections, a rated current is applied to the CMC inside the container (container size: about 550 x 450 x 300 mm).
At that time, the temperature of the inner diameter of the CMC and the ambient temperature are measured with a thermocouple and recorded with a data logger.

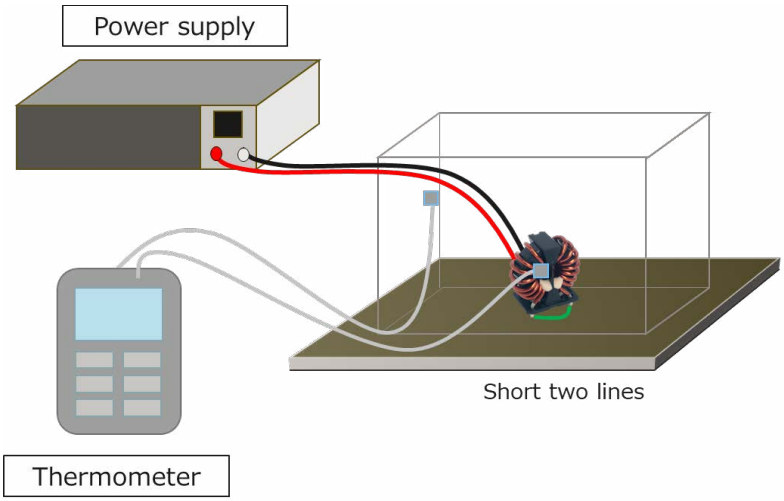


Figure 1 - Measurement system

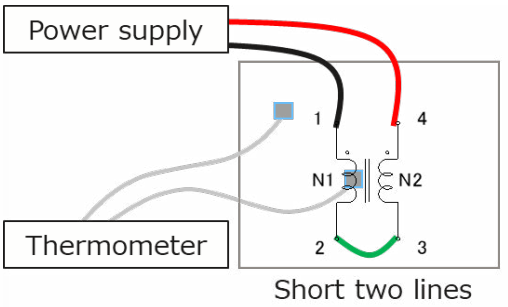


Figure 2 - Schematics

After confirming that the temperature of the CMC has stabilized, turn off the power and calculate the temperature rise value from the measured data using the following formula.

$T = (t2-t_{a2})-(t1-t_{a1})$

And then,

T : Temperature rising (°C)

t_1 : Initial temperature of CMC (°C)

t_2 : Temperature of CMC when current is applied (°C)

t_{a1} : Initial ambient temperature (°C)

t_{a2} : Ambient temperature when current is applied (°C)

AC Line Filters

Common Mode SCF39XV, SCR39XV & SCT39XV Single-Phase Coils, Automotive Grade

Overview

The KEMET SCF39XV, SCR39XV and SCT39XV single-phase coils are common mode chokes with a wide variety of characteristics for automotive and harsh environment industrial application. These toroidal coils are designed with nanocrystalline metal or Mn-Zn ferrite cores and are useful in various noise countermeasure fields.

Applications

- On board charger for EV/PHEV
- Wireless charging systems with 85 kHz
- Medium power drives for steering, air conditioning and mild hybrid 48 V systems
- High voltage automotive and harsh environment industrial EMI filtering

Benefits

- Nanocrystalline metal core (SCF39XV)
- Mn-Zn ferrite S15H (SCR39XV)
- Mn-Zn ferrite 7HT (SCT39XV)
- High rated voltage up to 1,000 V AC/DC
- Ultra-high inductance (SCF39XV)
- Ultra-high permeability (SCR39XV)
- Operating temperature range from -40°C to +150°C (SCF39XV & SCT39XV)
- Operating temperature range from -40°C to +120°C (SCR39XV)
- UL 94 V–0 flame retardant rated base and cap
- AEC-Q200 qualified

Part Number System

SC	F	39	XV-	100-		1R5	A	011	JH
Series	Core Material Code	Outer Core Diameter (mm)	Approval	Rated Current (A)	Phase	Wire Diameter (mm)	Windings	Number of Turns	Terminal Base Type
SC	F = Nanocrystal core R = Mn-Zn ferrite core S15H T = Mn-Zn ferrite core 7HT	39 = 39 mm ø	XV = AEC-Q200	xxx- = xx.x A Examples: 100 = 10.0 A 420 = 42.0 A	Blank = Single-phase	R = Decimal point Examples: 1R5 = 1.5 mm 2R0 = 2.0 mm	A = Single B = Double	00x = x turns 0xx = xx turns Examples: 005 = 5 turns 028 = 28 turns	JH = Horizontal type

Magnetic Permeability of Ferrite Material

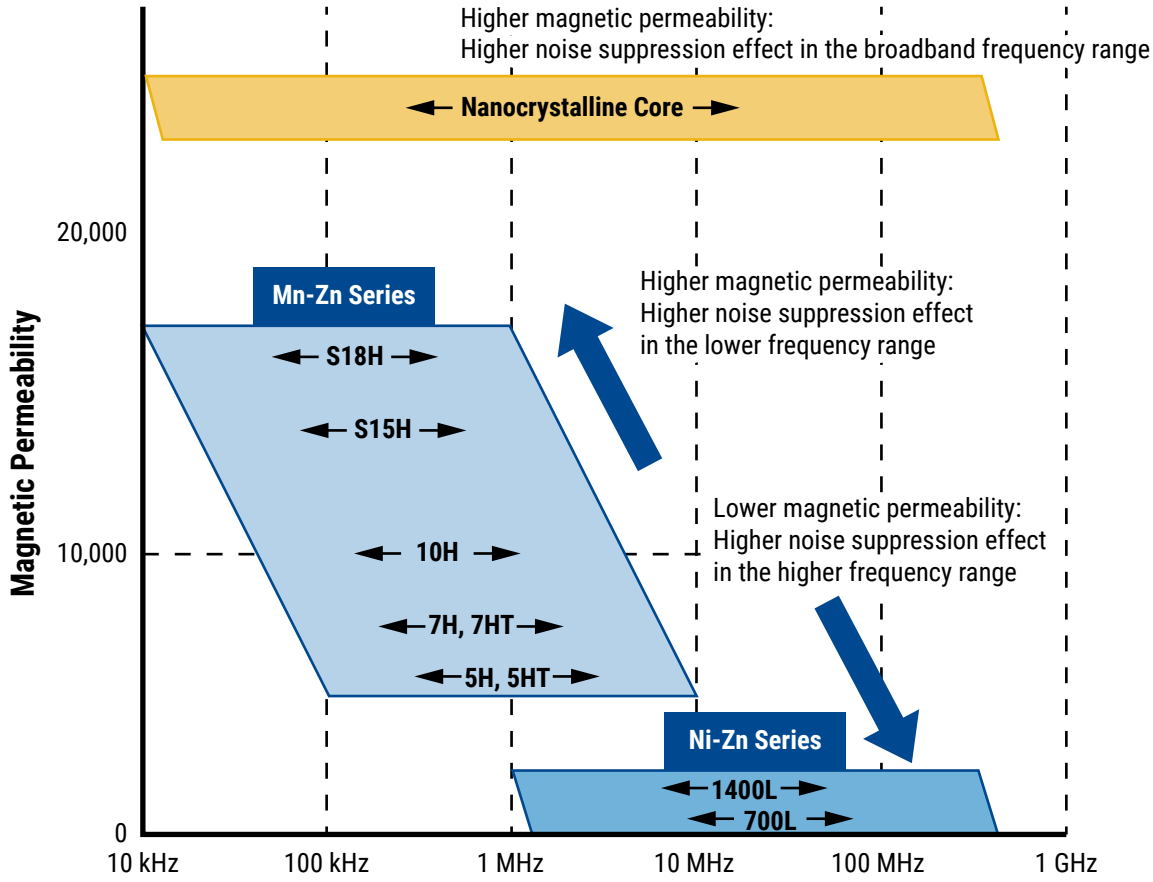
In order to achieve efficient noise reduction, it is important to select the material according to the target frequency band. Depending on its magnetic permeability, a particular ferrite material or metal material will be effective in a certain frequency band. A schematic representation of the relationship between the magnetic permeability of each material and the corresponding effective band range is shown in Figure 1.

Materials with higher magnetic permeability are effective in the lower frequency range, while those with lower magnetic permeability are effective in the higher frequency range. Thus, Mn-Zn products are mainly used for reducing conduction noise, while Ni-Zn products are commonly used for radiation noise countermeasures. Metal materials, however, are effective throughout the broadband frequency range, in low as well as high frequencies.

The effective frequency range varies depending on core shape, size, and number of windings. This frequency dependence of the magnetic permeability as shown in the figure serves for reference purposes only. It should be tested on the actual device to determine its effectiveness.

S18H, S15H, 10H, 7H, 7HT, 5H, 5HT, 1400L, and 700L are KEMET's proprietary ferrite material names. Other materials are available upon request.

Figure 1 - Relationship between the magnetic permeability of each material and its effective frequency range



Dimensions – Millimeters

Figure 1

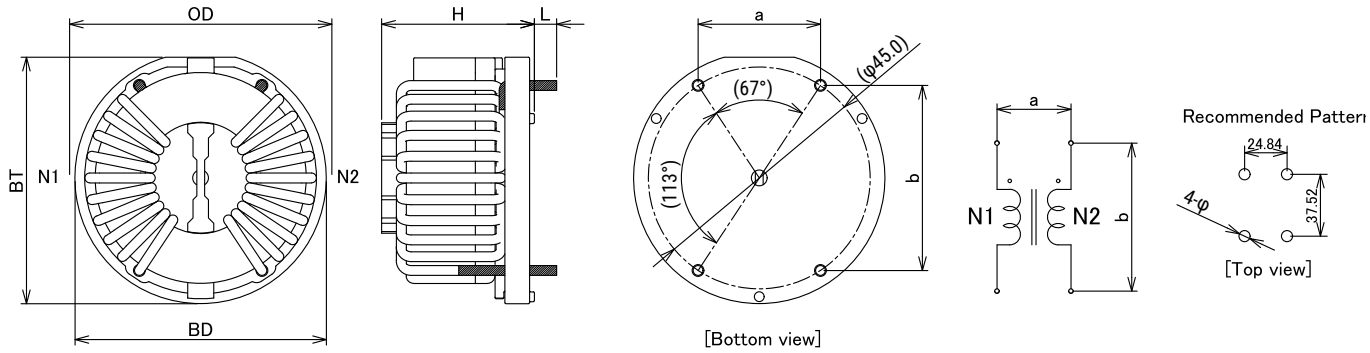
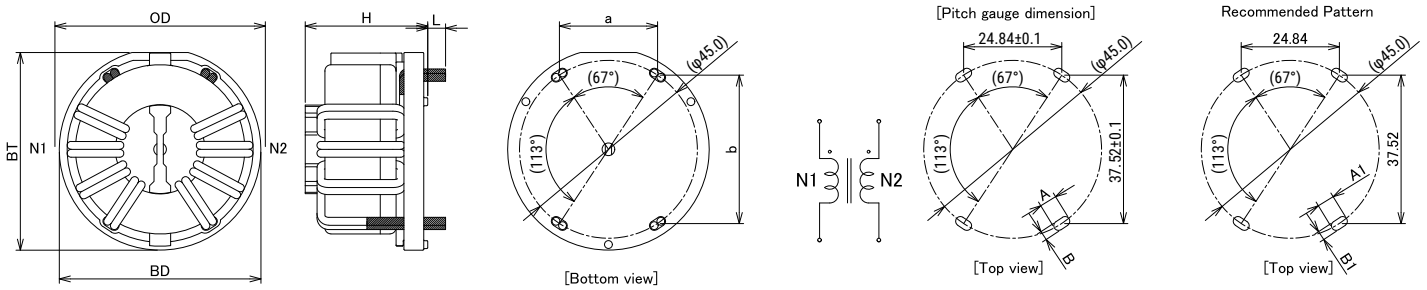


Figure 2



Part Type	Dimensions (mm)			Base Dimensions[2]		Pin Pitch[3]		Pitch Gauge[4]		Recommended Hole Pattern[5]			Figure
	OD (Maximum)	H [1]	L	BD	BT	a	b	A	B	φ	A1	B1	
SCF39XV-100-1R5A028JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.0	-	-	Fig. 1
SCF39XV-120-1R6A024JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.1	-	-	Fig. 1
SCF39XV-130-1R7A022JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.2	-	-	Fig. 1
SCF39XV-140-1R8A019JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.4	-	-	Fig. 1
SCF39XV-160-1R9A017JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.5	-	-	Fig. 1
SCF39XV-180-2R0A015JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.6	-	-	Fig. 1
SCF39XV-190-2R1A014JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.7	-	-	Fig. 1
SCF39XV-200-2R2A013JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.9	-	-	Fig. 1
SCF39XV-220-2R3A012JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	3.0	-	-	Fig. 1
SCF39XV-240-2R4A011JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	3.1	-	-	Fig. 1
SCF39XV-310-1R9B007JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	(24.84)	(37.52)	4.9±0.1	2.6±0.1	-	5.1	2.8	Fig. 2
SCF39XV-320-2R0B006JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	(24.84)	(37.52)	5.0±0.1	2.7±0.1	-	5.2	2.9	Fig. 2
SCF39XV-400-2R2B005JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	(24.84)	(37.52)	5.5±0.1	2.9±0.1	-	5.7	3.1	Fig. 2
SCF39XV-420-2R4B004JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	(24.84)	(37.52)	5.7±0.1	3.1±0.1	-	5.9	3.3	Fig. 2

[1] The lower limit dimension is not 100% inspected in production process.

[2] The terminal base dimension is not 100% inspected in production process.

[3] Inspection by using pin-pitch gauge.

[4] Inspection by using pin-pitch gauge as shown in Figure 2.

[5] Values are for reference only, not guaranteed.

Dimensions – Millimeters cont.

Figure 1

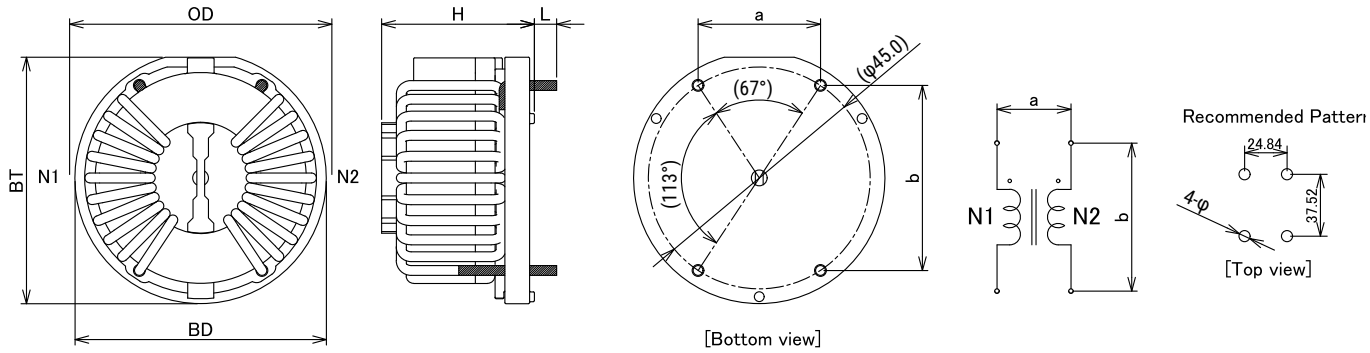
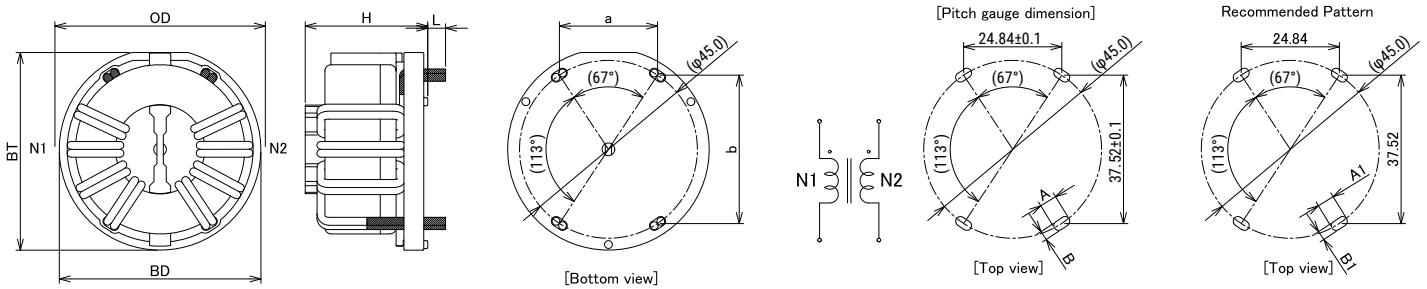


Figure 2



Part Type	Dimensions (mm)			Base Dimensions[2]		Pin Pitch[3]		Pitch Gauge[4]		Recommended Hole Pattern[5]			Figure
	OD (Maximum)	H [1]	L	BD	BT	a	b	A	B	φ	A1	B1	
SCR39XV-100-1R5A028JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.0	-	-	Fig. 1
SCR39XV-120-1R6A024JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.1	-	-	Fig. 1
SCR39XV-130-1R7A022JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.2	-	-	Fig. 1
SCR39XV-140-1R8A019JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.4	-	-	Fig. 1
SCR39XV-160-1R9A017JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.5	-	-	Fig. 1
SCR39XV-180-2R0A015JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.6	-	-	Fig. 1
SCR39XV-190-2R1A014JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.7	-	-	Fig. 1
SCR39XV-200-2R2A013JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.9	-	-	Fig. 1
SCR39XV-220-2R3A012JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	3.0	-	-	Fig. 1
SCR39XV-240-2R4A011JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	3.1	-	-	Fig. 1
SCR39XV-310-1R9B007JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	(24.84)	(37.52)	4.9±0.1	2.6±0.1	-	5.1	2.8	Fig. 2
SCR39XV-320-2R0B006JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	(24.84)	(37.52)	5.0±0.1	2.7±0.1	-	5.2	2.9	Fig. 2
SCR39XV-400-2R2B005JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	(24.84)	(37.52)	5.5±0.1	2.9±0.1	-	5.7	3.1	Fig. 2
SCR39XV-420-2R4B004JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	(24.84)	(37.52)	5.7±0.1	3.1±0.1	-	5.9	3.3	Fig. 2

[1] The lower limit dimension is not 100% inspected in production process.

[2] The terminal base dimension is not 100% inspected in production process.

[3] Inspection by using pin-pitch gauge.

[4] Inspection by using pin-pitch gauge as shown in Figure 2.

[5] Values are for reference only, not guaranteed.

Dimensions – Millimeters cont.

Figure 1

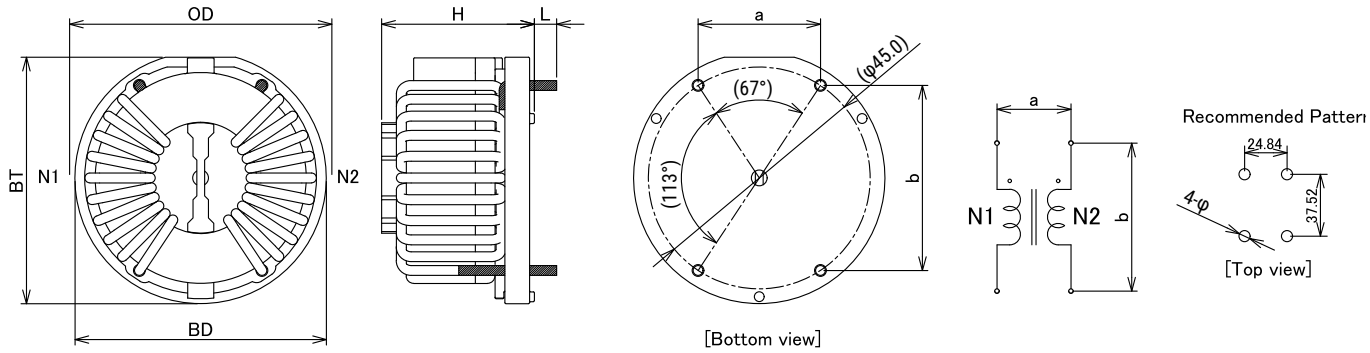
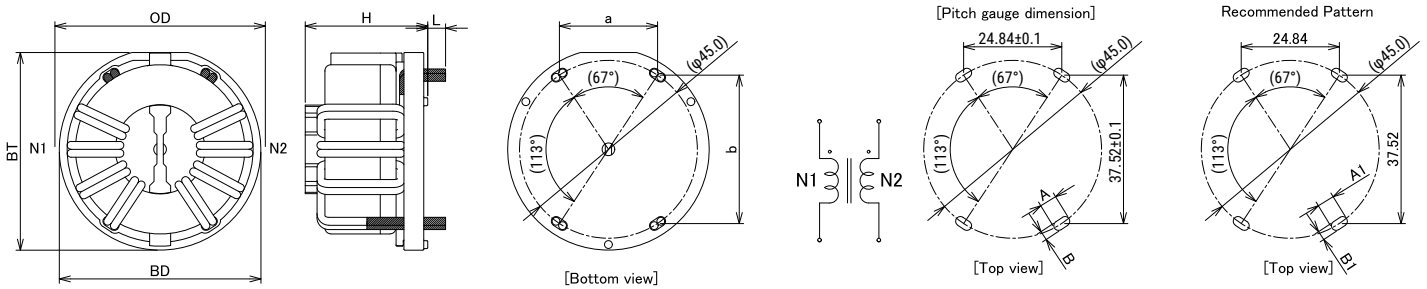


Figure 2



Part Type	Dimensions (mm)			Base Dimensions[2]		Pin Pitch[3]		Pitch Gauge[4]		Recommended Hole Pattern[5]			Figure
	OD (Maximum)	H [1]	L	BD	BT	a	b	A	B	φ	A1	B1	
SCT39XV-100-1R5A028JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.0	-	-	Fig. 1
SCT39XV-120-1R6A024JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.1	-	-	Fig. 1
SCT39XV-130-1R7A022JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.2	-	-	Fig. 1
SCT39XV-140-1R8A019JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.4	-	-	Fig. 1
SCT39XV-160-1R9A017JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.5	-	-	Fig. 1
SCT39XV-180-2R0A015JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.6	-	-	Fig. 1
SCT39XV-190-2R1A014JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.7	-	-	Fig. 1
SCT39XV-200-2R2A013JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	2.9	-	-	Fig. 1
SCT39XV-220-2R3A012JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	3.0	-	-	Fig. 1
SCT39XV-240-2R4A011JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	24.84±0.5	37.52±0.5	-	-	3.1	-	-	Fig. 1
SCT39XV-310-1R9B007JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	(24.84)	(37.52)	4.9±0.1	2.6±0.1	-	5.1	2.8	Fig. 2
SCT39XV-320-2R0B006JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	(24.84)	(37.52)	5.0±0.1	2.7±0.1	-	5.2	2.9	Fig. 2
SCT39XV-400-2R2B005JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	(24.84)	(37.52)	5.5±0.1	2.9±0.1	-	5.7	3.1	Fig. 2
SCT39XV-420-2R4B004JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	(24.84)	(37.52)	5.7±0.1	3.1±0.1	-	5.9	3.3	Fig. 2

[1] The lower limit dimension is not 100% inspected in production process.

[2] The terminal base dimension is not 100% inspected in production process.

[3] Inspection by using pin-pitch gauge.

[4] Inspection by using pin-pitch gauge as shown in Figure 2.

[5] Values are for reference only, not guaranteed.

Environmental Compliance

All KEMET AC line filters are RoHS Compliant.

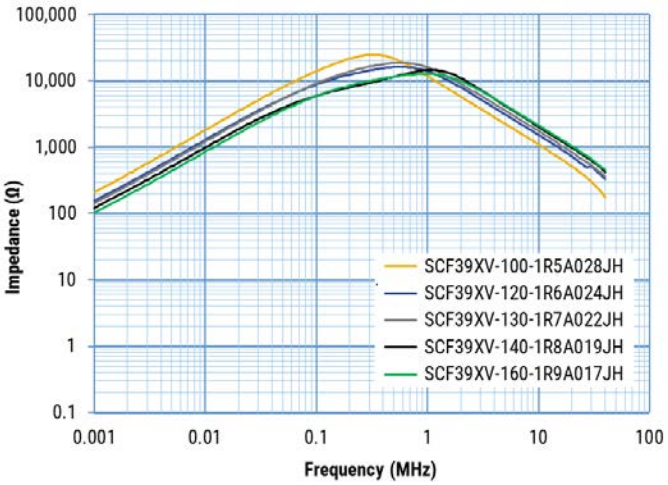
Performance Characteristics

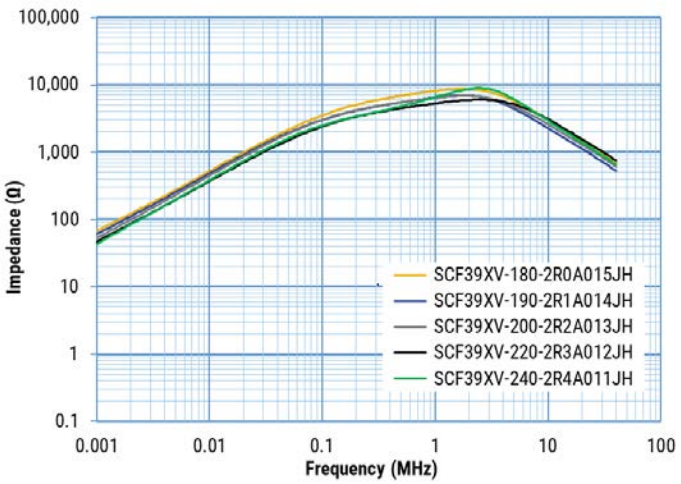
Item	Performance Characteristics
Rated Voltage	1,000 VAC/VDC
Withstanding Voltage	2,400 VAC (2 seconds, between lines)
Insulation Resistance	>100 MΩ at 1,000 VDC (between lines)
Rated Current Range	10 – 42 A
Rated Inductance Range	0.4 – 19.5 mH +50%, –30% (SCF39XV) 0.21 – 10.3 mH ±35% (SCR39XV) 0.119 – 5.85 mH ±30% (SCT39XV)
Inductance Measurement Condition	100 kHz
Operating Temperature Range	–40°C to +150°C (include self temperature rise) (SCF39XV & SCT39XV) –40°C to +120°C (include self temperature rise) (SCR39XV)

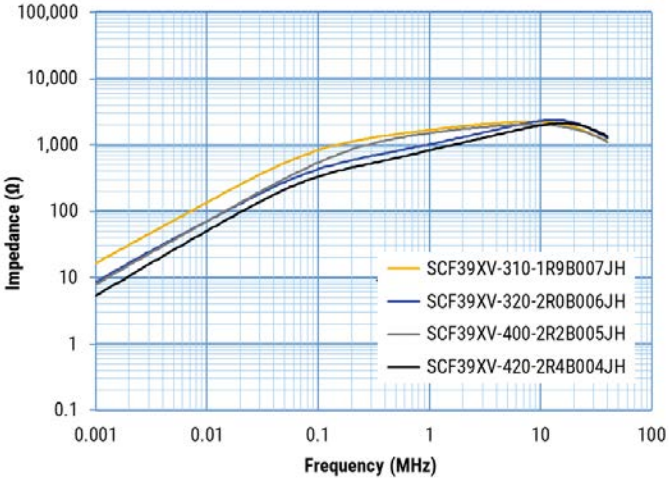
Table 1 – Ratings & Part Number Reference

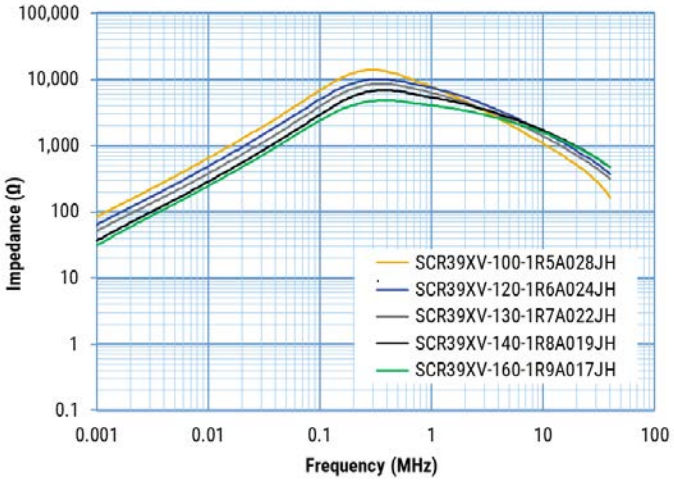
Part Number	Rated Voltage AC/DC (V)	Rated Current (A)	Inductance 100kHz (mH)	DC Resistance/ Line (mΩ)	Temperature Rise (K) Reference	Wire Diameter (mm)	Weight (g) Approximate
SCF39XV-100-1R5A028JH	1,000	10	19.500 +50%, -30%	17.910 ±13%	45	1.5	132.3
SCF39XV-120-1R6A024JH	1,000	12	14.400 +50%, -30%	13.600 ±13%	50	1.6	129.4
SCF39XV-130-1R7A022JH	1,000	13	12.100 +50%, -30%	11.100 ±13%	50	1.7	132.7
SCF39XV-140-1R8A019JH	1,000	14	9.000 +50%, -30%	8.660 ±13%	45	1.8	130.1
SCF39XV-160-1R9A017JH	1,000	16	7.200 +50%, -30%	7.120 ±13%	50	1.9	128.6
SCF39XV-180-2R0A015JH	1,000	18	5.600 +50%, -30%	5.980 ±13%	50	2.0	128.7
SCF39XV-190-2R1A014JH	1,000	19	4.900 +50%, -30%	5.030 ±13%	45	2.1	128.7
SCF39XV-200-2R2A013JH	1,000	20	4.200 +50%, -30%	4.280 ±13%	55	2.2	133.9
SCF39XV-220-2R3A012JH	1,000	22	3.600 +50%, -30%	3.580 ±13%	45	2.3	132.8
SCF39XV-240-2R4A011JH	1,000	24	3.000 +50%, -30%	3.040 ±13%	55	2.4	139.2
SCF39XV-310-1R9B007JH	1,000	31	1.200 +50%, -30%	1.480 ±23%	45	1.9 x 2 Parallel	119.7
SCF39XV-320-2R0B006JH	1,000	32	0.900 +50%, -30%	1.130 ±23%	40	2.0 x 2 Parallel	117.9
SCF39XV-400-2R2B005JH	1,000	40	0.620 +50%, -30%	0.780 ±23%	45	2.2 x 2 Parallel	123.5
SCF39XV-420-2R4B004JH	1,000	42	0.400 +50%, -30%	0.530 ±23%	50	2.4 x 2 Parallel	126.1
SCR39XV-100-1R5A028JH	1,000	10	10.300 ±35%	17.910 ±13%	45	1.5	122.2
SCR39XV-120-1R6A024JH	1,000	12	7.600 ±35%	13.600 ±13%	50	1.6	121.2
SCR39XV-130-1R7A022JH	1,000	13	6.400 ±35%	11.100 ±13%	50	1.7	124.2
SCR39XV-140-1R8A019JH	1,000	14	4.800 ±35%	8.660 ±13%	45	1.8	122.1
SCR39XV-160-1R9A017JH	1,000	16	3.800 ±35%	7.120 ±13%	50	1.9	123.1
SCR39XV-180-2R0A015JH	1,000	18	3.000 ±35%	5.980 ±13%	50	2.0	122.1
SCR39XV-190-2R1A014JH	1,000	19	2.600 ±35%	5.030 ±13%	45	2.1	124.9
SCR39XV-200-2R2A013JH	1,000	20	2.230 ±35%	4.280 ±13%	55	2.2	126.8
SCR39XV-220-2R3A012JH	1,000	22	1.900 ±35%	3.580 ±13%	45	2.3	127.0
SCR39XV-240-2R4A011JH	1,000	24	1.600 ±35%	3.040 ±13%	55	2.4	128.0
SCR39XV-310-1R9B007JH	1,000	31	0.640 ±35%	1.480 ±23%	45	1.9 x 2 Parallel	114.4
SCR39XV-320-2R0B006JH	1,000	32	0.470 ±35%	1.130 ±23%	40	2.0 x 2 Parallel	112.1
SCR39XV-400-2R2B005JH	1,000	40	0.330 ±35%	0.780 ±23%	45	2.2 x 2 Parallel	114.7
SCR39XV-420-2R4B004JH	1,000	42	0.210 ±35%	0.530 ±23%	50	2.4 x 2 Parallel	114.3
SCT39XV-100-1R5A028JH	1,000	10	5.850 ±30%	17.910 ±13%	45	1.5	122.1
SCT39XV-120-1R6A024JH	1,000	12	4.300 ±30%	13.600 ±13%	50	1.6	121.0
SCT39XV-130-1R7A022JH	1,000	13	3.600 ±30%	11.100 ±13%	50	1.7	123.6
SCT39XV-140-1R8A019JH	1,000	14	2.700 ±30%	8.660 ±13%	45	1.8	122.1
SCT39XV-160-1R9A017JH	1,000	16	2.160 ±30%	7.120 ±13%	50	1.9	122.6
SCT39XV-180-2R0A015JH	1,000	18	1.680 ±30%	5.980 ±13%	50	2.0	121.8
SCT39XV-190-2R1A014JH	1,000	19	1.460 ±30%	5.030 ±13%	45	2.1	124.8
SCT39XV-200-2R2A013JH	1,000	20	1.260 ±30%	4.280 ±13%	55	2.2	126.3
SCT39XV-220-2R3A012JH	1,000	22	1.070 ±30%	3.580 ±13%	45	2.3	127.0
SCT39XV-240-2R4A011JH	1,000	24	0.900 ±30%	3.040 ±13%	55	2.4	128.3
SCT39XV-310-1R9B007JH	1,000	31	0.364 ±30%	1.480 ±23%	45	1.9 x 2 Parallel	113.8
SCT39XV-320-2R0B006JH	1,000	32	0.268 ±30%	1.130 ±23%	40	2.0 x 2 Parallel	112.7
SCT39XV-400-2R2B005JH	1,000	40	0.187 ±30%	0.780 ±23%	45	2.2 x 2 Parallel	114.4
SCT39XV-420-2R4B004JH	1,000	42	0.119 ±30%	0.530 ±23%	50	2.4 x 2 Parallel	113.4
Part Number	**Rated Voltage AC/DC (V)**	**Rated Current (A)**	**Inductance 100kHz (mH)**	**DC Resistance/ Line (mΩ)**	**Temperature Rise (K) Reference**	**Wire Diameter (mm)**	**Weight (g) Approximate**

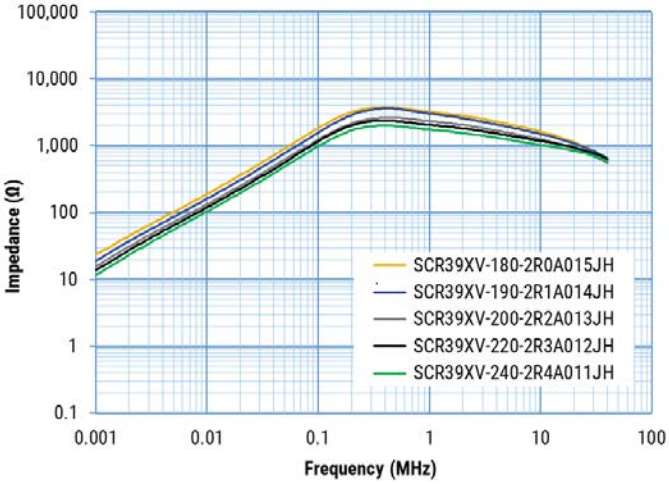
Frequency Characteristics

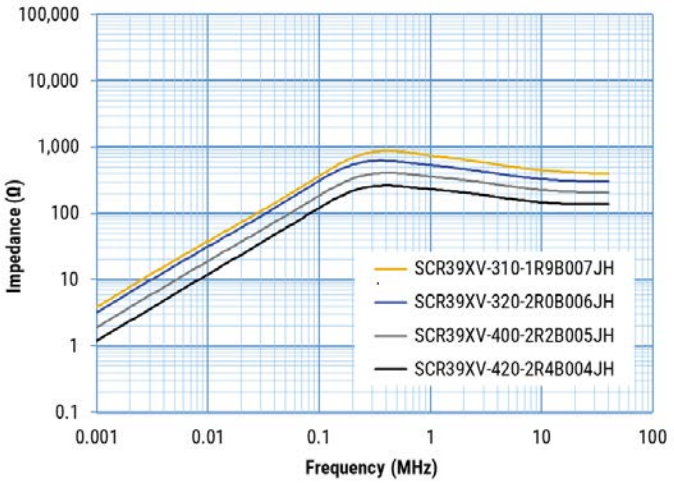




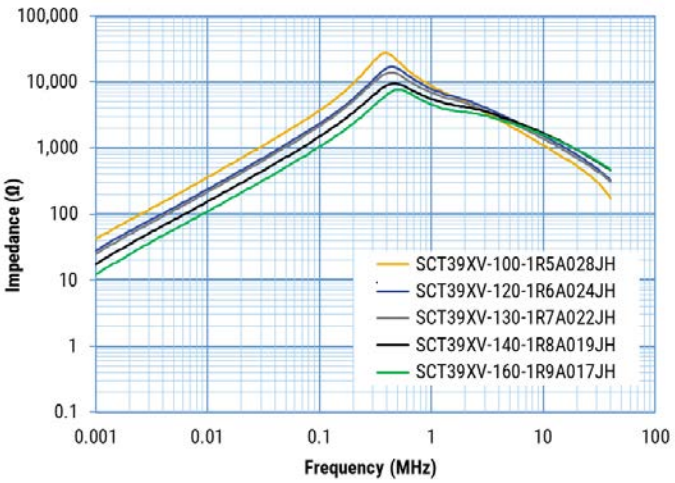


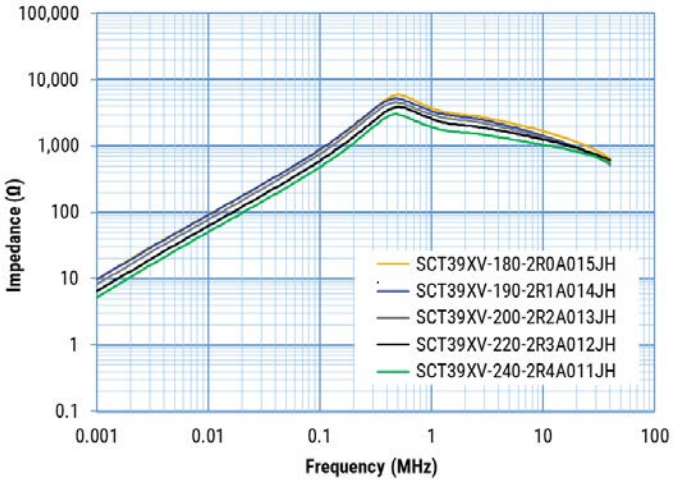


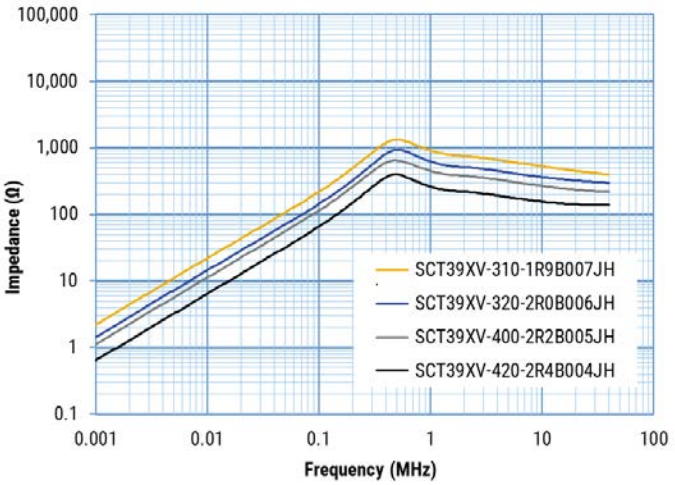




Frequency Characteristics cont.







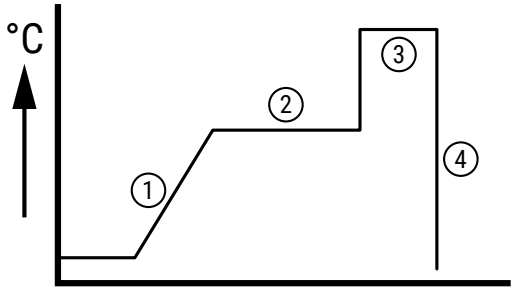
Packaging

Type	Packaging Type	Pieces Per Box
SCF39XV	Tray	48
SCR39XV		
SCT39XV		

Recommend Solder Condition

Soldering method	Temperature	Soldering time	Number of times
Solder iron	400°C maximum	3 seconds maximum	2 times
Dip soldering	260°C maximum	3 seconds maximum	2 times
Flow soldering	See Below	See Below	See Below

Flow Soldering Condition



1. Reserve Temperature
2. Preheat Temperature: 80~110°C Time: 120 seconds
3. Soak Temperature: 250°C Time: 8 seconds
4. Cooling

Solder conditions are for reference only and should be confirmed by the customer there is no problem.

Temperature Rise Measuring Method

Connect the cable to the CMC by soldering and cool it to room temperature. Also, N1 and N2 are shorted.
In order to prevent temperature changes due to air convections, a rated current is applied to the CMC inside the container (container size: about 550 x 450 x 300 mm).
At that time, the temperature of the inner diameter of the CMC and the ambient temperature are measured with a thermocouple and recorded with a data logger.

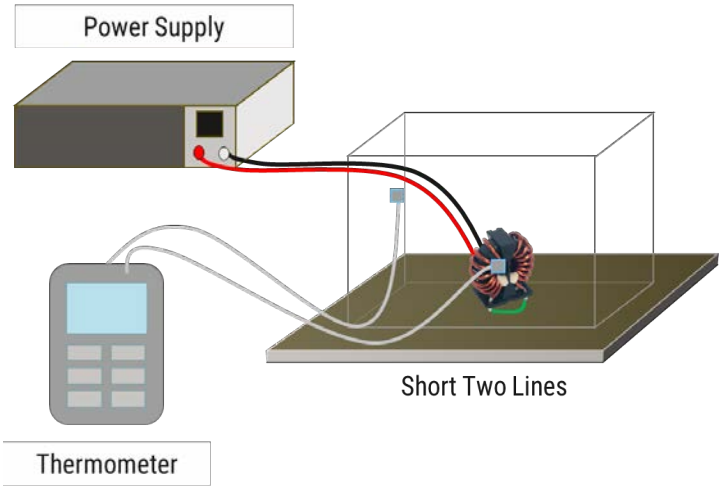


Figure 1 - Measurement system

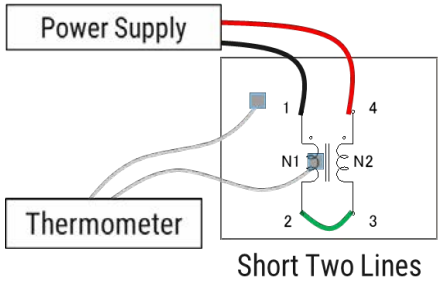


Figure 2 - Schematics

After confirming that the temperature of the CMC has stabilized, turn off the power and calculate the temperature rise value from the measured data using the following formula.

$T = (t_2-t_{a2})-(t_1-t_{a1})$

And then,

T : Temperature rising (°C)

t_1 : Initial temperature of CMC (°C)

t_2 : Temperature of CMC when current is applied (°C)

t_{a1} : Initial ambient temperature (°C)

t_{a2} : Ambient temperature when current is applied (°C)

AC Line Filters

Common Mode SCF39XV-S, SCR39XV-S & SCT39XV-S Three-Phase Coils, Automotive Grade

Overview

The KEMET SCF39XV-S, SCR39XV-S and SCT39XV-S three-phase coils are common mode chokes with a wide variety of characteristics for automotive and harsh environment industrial application. These toroidal coils are designed with nanocrystalline metal or Mn-Zn ferrite cores and are useful in various noise countermeasure fields.

Applications

- On board charger for EV/PHEV
- Wireless charging systems with 85 kHz
- Medium power drives for steering, air conditioning and mild hybrid 48 V systems
- High voltage automotive and harsh environment industrial EMI filtering

Benefits

- Nanocrystalline metal core (SCF39XV-S)
- Mn-Zn ferrite S15H (SCR39XV-S)
- Mn-Zn ferrite 7HT (SCT39XV-S)
- High rated voltage up to 1,000 V AC/DC
- Ultra-high inductance (SCF39XV-S)
- Ultra-high permeability (SCR39XV-S)
- Operating temperature range from −40°C to +150°C (SCF39XV-S and SCT39XV-S)
- Operating temperature range from −40°C to +120°C (SCR39XV-S)
- UL 94 V–0 flame retardant rated base and cap
- AEC-Q200 qualified

Part Number System

SC	F	39	XV-	120-	S	1R5	A	011	JH
Series	Core Material Code	Outer Core Diameter (mm)	Approval	Rated Current (A)	Phase	Wire Diameter (mm)	Windings	Number of Turns	Terminal Base Type
SC	F = Nanocrystal core R = Mn-Zn ferrite core S15H T = Mn-Zn ferrite core 7HT	39 = 39 mm ø	XV = AEC-Q200	xxx- = xx.x A Examples: 120 = 12.0 A 210 = 21.0 A	S = Three-phase	R = Decimal point Examples: 1R5 = 1.5 mm 2R0 = 2.0 mm	A = Single B = Double	00x = x turns 0xx = xx turns Examples: 003 = 3 turns 017 = 17 turns	JH = Horizontal type

Magnetic Permeability of Ferrite Material

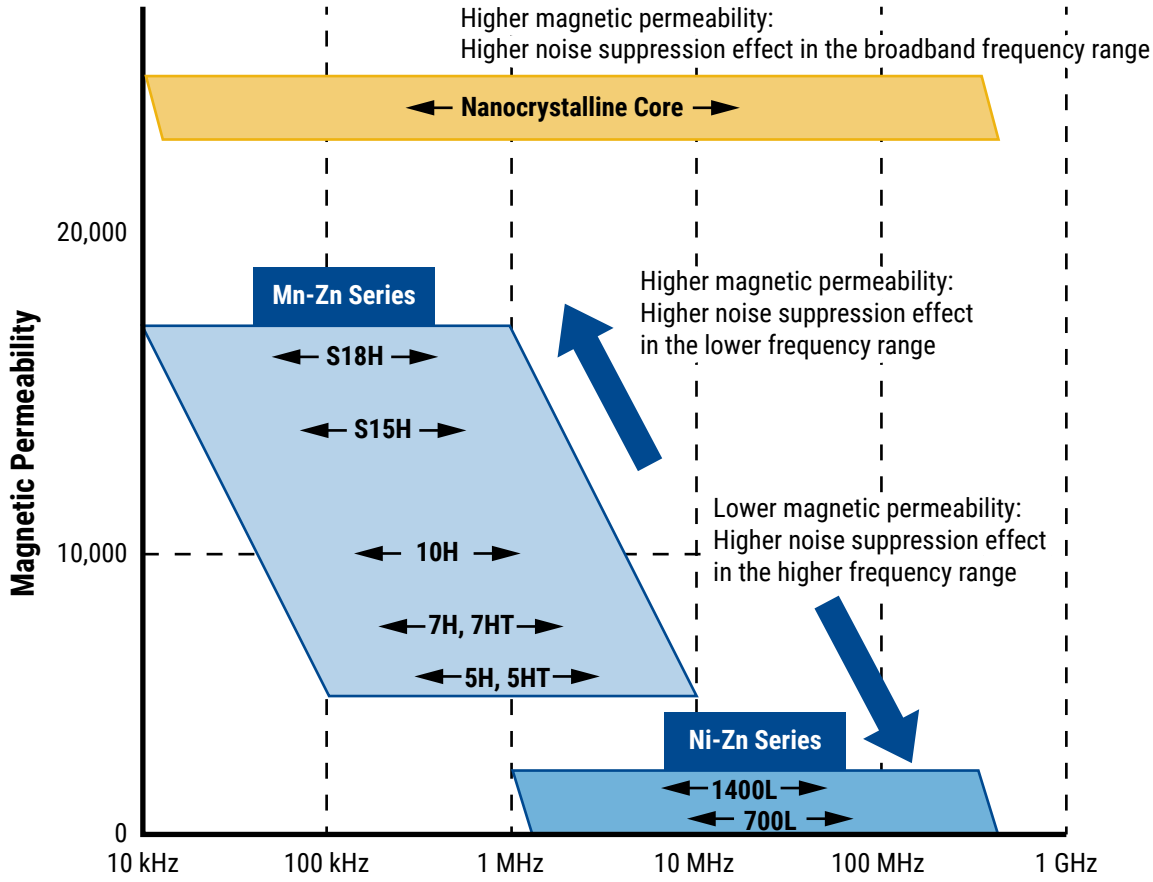
In order to achieve efficient noise reduction, it is important to select the material according to the target frequency band. Depending on its magnetic permeability, a particular ferrite material or metal material will be effective in a certain frequency band. A schematic representation of the relationship between the magnetic permeability of each material and the corresponding effective band range is shown in Figure 1.

Materials with higher magnetic permeability are effective in the lower frequency range, while those with lower magnetic permeability are effective in the higher frequency range. Thus, Mn-Zn products are mainly used for reducing conduction noise, while Ni-Zn products are commonly used for radiation noise countermeasures. Metal materials, however, are effective throughout the broadband frequency range, in low as well as high frequencies.

The effective frequency range varies depending on core shape, size, and number of windings. This frequency dependence of the magnetic permeability as shown in the figure serves for reference purposes only. It should be tested on the actual device to determine its effectiveness.

S18H, S15H, 10H, 7H, 7HT, 5H, 5HT, 1400L, and 700L are KEMET's proprietary ferrite material names. Other materials are available upon request.

Figure 1 - Relationship between the magnetic permeability of each material and its effective frequency range



Dimensions – Millimeters

Figure 1

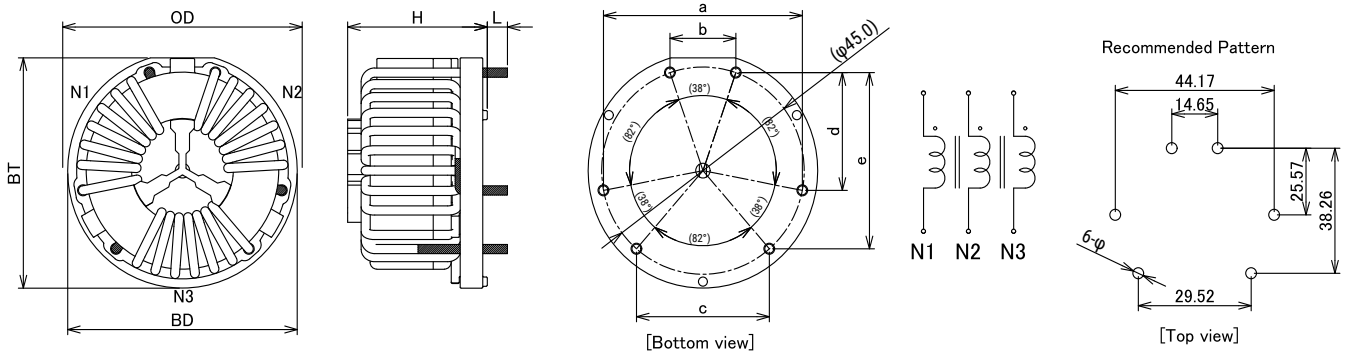
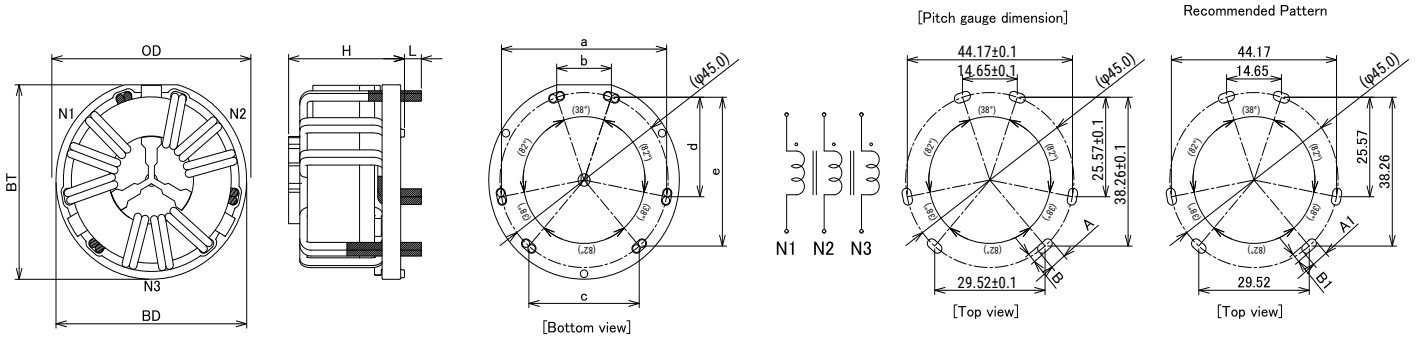


Figure 2



Part Type	Dimensions (mm)			Base Dimensions[2]		Pin Pitch[3]					Pitch Gauge[4]		Recommended Hole Pattern[5]			Figure
	OD (Maximum)	H [1]	L	BD	BT	a	b	c	d	e	A	B	φ	A1	B1	
SCF39XV-120-S1R5A017JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	44.17±0.6	14.65±0.6	29.52±0.6	25.57±0.6	38.26±0.6	-	-	2.1	-	-	Fig. 1
SCF39XV-140-S1R6A014JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	44.17±0.6	14.65±0.6	29.52±0.6	25.57±0.6	38.26±0.6	-	-	2.2	-	-	Fig. 1
SCF39XV-150-S1R7A011JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	44.17±0.6	14.65±0.6	29.52±0.6	25.57±0.6	38.26±0.6	-	-	2.3	-	-	Fig. 1
SCF39XV-190-S1R9A009JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	44.17±0.6	14.65±0.6	29.52±0.6	25.57±0.6	38.26±0.6	-	-	2.6	-	-	Fig. 1
SCF39XV-210-S2R0A008JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	44.17±0.6	14.65±0.6	29.52±0.6	25.57±0.6	38.26±0.6	-	-	2.7	-	-	Fig. 1
SCF39XV-230-S2R2A007JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	44.17±0.6	14.65±0.6	29.52±0.6	25.57±0.6	38.26±0.6	-	-	3.0	-	-	Fig. 1
SCF39XV-280-S2R4A006JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	44.17±0.6	14.65±0.6	29.52±0.6	25.57±0.6	38.26±0.6	-	-	3.2	-	-	Fig. 1
SCF39XV-400-S2R2B003JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	(44.17)	(14.65)	(29.52)	(25.57)	(38.26)	5.6±0.1	3.0±0.1	-	5.8	3.2	Fig. 2
SCR39XV-120-S1R5A017JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	44.17±0.6	14.65±0.6	29.52±0.6	25.57±0.6	38.26±0.6	-	-	2.1	-	-	Fig. 1
SCR39XV-140-S1R6A014JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	44.17±0.6	14.65±0.6	29.52±0.6	25.57±0.6	38.26±0.6	-	-	2.2	-	-	Fig. 1
SCR39XV-150-S1R7A011JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	44.17±0.6	14.65±0.6	29.52±0.6	25.57±0.6	38.26±0.6	-	-	2.3	-	-	Fig. 1
SCR39XV-190-S1R9A009JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	44.17±0.6	14.65±0.6	29.52±0.6	25.57±0.6	38.26±0.6	-	-	2.6	-	-	Fig. 1

[1] The lower limit dimension is not 100% inspected in production process.

[2] The terminal base dimension is not 100% inspected in production process.

[3] Inspection by using pin-pitch gauge.

[4] Inspection by using pin-pitch gauge as shown in Figure 2.

[5] Values are for reference only, not guaranteed.

Dimensions – Millimeters cont.

Figure 1

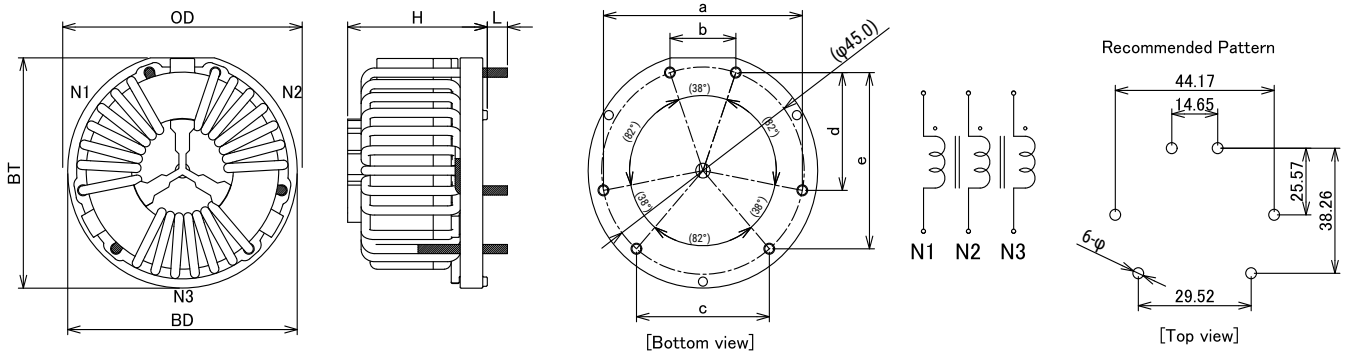
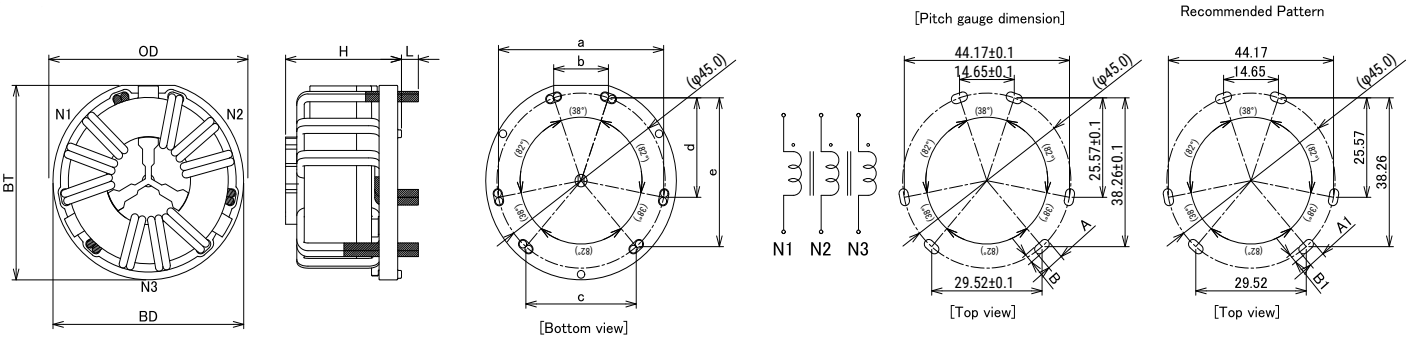


Figure 2



Part Type	Dimensions (mm)			Base Dimensions[2]		Pin Pitch[3]					Pitch Gauge[4]		Recommended Hole Pattern[5]			Figure
	OD (Maximum)	H [1]	L	BD	BT	a	b	c	d	e	A	B	φ	A1	B1	
SCR39XV-210-S2R0A008JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	44.17±0.6	14.65±0.6	29.52±0.6	25.57±0.6	38.26±0.6	-	-	2.7	-	-	Fig. 1
SCR39XV-230-S2R2A007JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	44.17±0.6	14.65±0.6	29.52±0.6	25.57±0.6	38.26±0.6	-	-	3.0	-	-	Fig. 1
SCR39XV-280-S2R4A006JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	44.17±0.6	14.65±0.6	29.52±0.6	25.57±0.6	38.26±0.6	-	-	3.2	-	-	Fig. 1
SCR39XV-400-S2R2B003JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	(44.17)	(14.65)	(29.52)	(25.57)	(38.26)	5.6±0.1	3.0±0.1	-	5.8	3.2	Fig. 2
SCT39XV-120-S1R5A017JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	44.17±0.6	14.65±0.6	29.52±0.6	25.57±0.6	38.26±0.6	-	-	2.1	-	-	Fig. 1
SCT39XV-140-S1R6A014JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	44.17±0.6	14.65±0.6	29.52±0.6	25.57±0.6	38.26±0.6	-	-	2.2	-	-	Fig. 1
SCT39XV-150-S1R7A011JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	44.17±0.6	14.65±0.6	29.52±0.6	25.57±0.6	38.26±0.6	-	-	2.3	-	-	Fig. 1
SCT39XV-190-S1R9A009JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	44.17±0.6	14.65±0.6	29.52±0.6	25.57±0.6	38.26±0.6	-	-	2.6	-	-	Fig. 1
SCT39XV-210-S2R0A008JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	44.17±0.6	14.65±0.6	29.52±0.6	25.57±0.6	38.26±0.6	-	-	2.7	-	-	Fig. 1
SCT39XV-230-S2R2A007JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	44.17±0.6	14.65±0.6	29.52±0.6	25.57±0.6	38.26±0.6	-	-	3.0	-	-	Fig. 1
SCT39XV-280-S2R4A006JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	44.17±0.6	14.65±0.6	29.52±0.6	25.57±0.6	38.26±0.6	-	-	3.2	-	-	Fig. 1
SCT39XV-400-S2R2B003JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	(44.17)	(14.65)	(29.52)	(25.57)	(38.26)	5.6±0.1	3.0±0.1	-	5.8	3.2	Fig. 2

[1] The lower limit dimension is not 100% inspected in production process.

[2] The terminal base dimension is not 100% inspected in production process.

[3] Inspection by using pin-pitch gauge.

[4] Inspection by using pin-pitch gauge as shown in Figure 2.

[5] Values are for reference only, not guaranteed.

Environmental Compliance

All KEMET AC line filters are RoHS Compliant.

Performance Characteristics

Item	Performance Characteristics
Rated Voltage	1,000 VAC/VDC
Withstanding Voltage	2,400 VAC (2 seconds, between lines)
Insulation Resistance	>100 MΩ at 1,000 VDC (between lines)
Rated Current Range	12 – 40 A
Rated Inductance Range	0.22 – 7.2 mH +50%, –30% (SCF39XV-S) 0.118 – 3.8 mH ±35% (SCR39XV-S) 0.067 – 2.15 mH ±30% (SCT39XV-S)
Inductance Measurement Condition	100 kHz
Operating Temperature Range	–40°C to +150°C (include self temperature rise) (SCF39XV-S & SCT39XV-S) –40°C to +120°C (include self temperature rise) (SCR39XV-S)

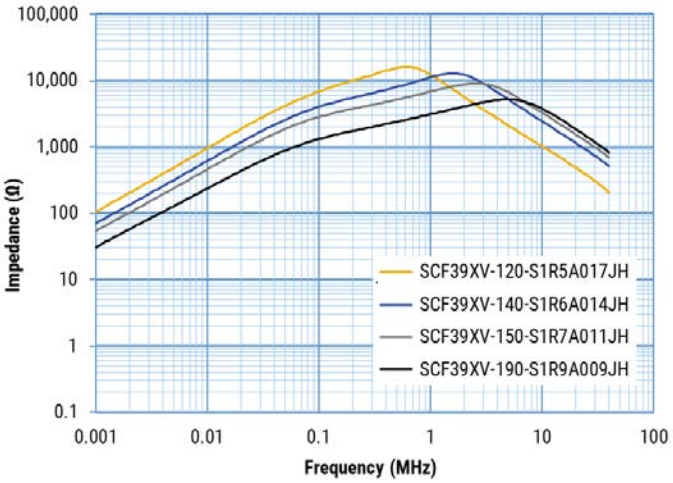
Table 1 – Ratings & Part Number Reference

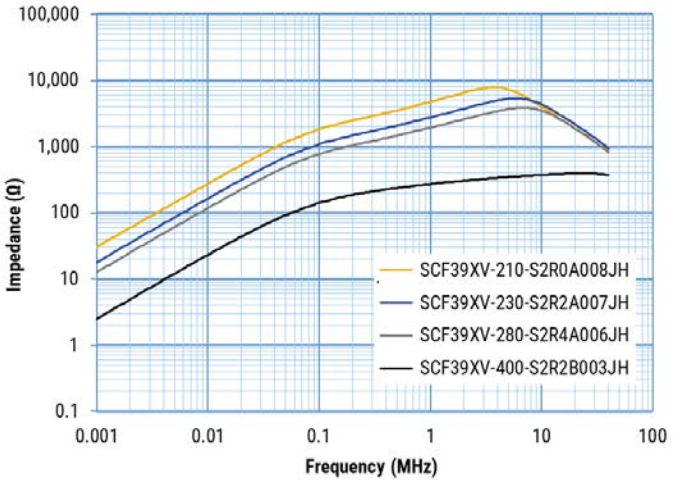
Part Number	Rated Voltage AC/DC (V)	Rated Current (A)	Inductance 100kHz (mH)	DC Resistance/ Line (mΩ)	Temperature Rise (K) Reference	Wire Diameter (mm)	Weight (g) Approximate
SCF39XV-120-S1R5A017JH	1,000	12	7.200 +50%, -30%	10.600 ±13%	50	1.5	126.5
SCF39XV-140-S1R6A014JH	1,000	14	4.900 +50%, -30%	7.870 ±13%	45	1.6	124.8
SCF39XV-150-S1R7A011JH	1,000	15	3.000 +50%, -30%	5.450 ±13%	45	1.7	119.8
SCF39XV-190-S1R9A009JH	1,000	19	2.000 +50%, -30%	3.690 ±13%	50	1.9	122.2
SCF39XV-210-S2R0A008JH	1,000	21	1.600 +50%, -30%	3.000 ±13%	50	2.0	122.3
SCF39XV-230-S2R2A007JH	1,000	23	1.200 +50%, -30%	2.230 ±13%	50	2.2	127.0
SCF39XV-280-S2R4A006JH	1,000	28	0.900 +50%, -30%	1.610 ±13%	45	2.4	128.8
SCF39XV-400-S2R2B003JH	1,000	40	0.220 +50%, -30%	0.400 ±23%	35	2.2 x 2 Parallel	122.1
SCR39XV-120-S1R5A017JH	1,000	12	3.800 ±35%	10.600 ±13%	50	1.5	116.9
SCR39XV-140-S1R6A014JH	1,000	14	2.600 ±35%	7.870 ±13%	45	1.6	115.3
SCR39XV-150-S1R7A011JH	1,000	15	1.600 ±35%	5.450 ±13%	45	1.7	110.7
SCR39XV-190-S1R9A009JH	1,000	19	1.070 ±35%	3.690 ±13%	50	1.9	112.9
SCR39XV-210-S2R0A008JH	1,000	21	0.840 ±35%	3.000 ±13%	50	2.0	113.0
SCR39XV-230-S2R2A007JH	1,000	23	0.640 ±35%	2.230 ±13%	50	2.2	117.3
SCR39XV-280-S2R4A006JH	1,000	28	0.470 ±35%	1.610 ±13%	45	2.4	119.0
SCR39XV-400-S2R2B003JH	1,000	40	0.118 ±35%	0.400 ±23%	35	2.2 x 2 Parallel	112.8
SCT39XV-120-S1R5A017JH	1,000	12	2.150 ±30%	10.600 ±13%	50	1.5	116.8
SCT39XV-140-S1R6A014JH	1,000	14	1.460 ±30%	7.870 ±13%	45	1.6	115.2
SCT39XV-150-S1R7A011JH	1,000	15	0.900 ±30%	5.450 ±13%	45	1.7	110.6
SCT39XV-190-S1R9A009JH	1,000	19	0.600 ±30%	3.690 ±13%	50	1.9	112.8
SCT39XV-210-S2R0A008JH	1,000	21	0.476 ±30%	3.000 ±13%	50	2.0	112.9
SCT39XV-230-S2R2A007JH	1,000	23	0.364 ±30%	2.230 ±13%	50	2.2	117.2
SCT39XV-280-S2R4A006JH	1,000	28	0.268 ±30%	1.610 ±13%	45	2.4	118.9
SCT39XV-400-S2R2B003JH	1,000	40	0.067 ±30%	0.400 ±23%	35	2.2 x 2 Parallel	112.7
Part Number	**Rated Voltage AC/DC (V)**	**Rated Current (A)**	**Inductance 100kHz (mH)**	**DC Resistance/ Line (mΩ)**	**Temperature Rise (K) Reference**	**Wire Diameter (mm)**	**Weight (g) Approximate**

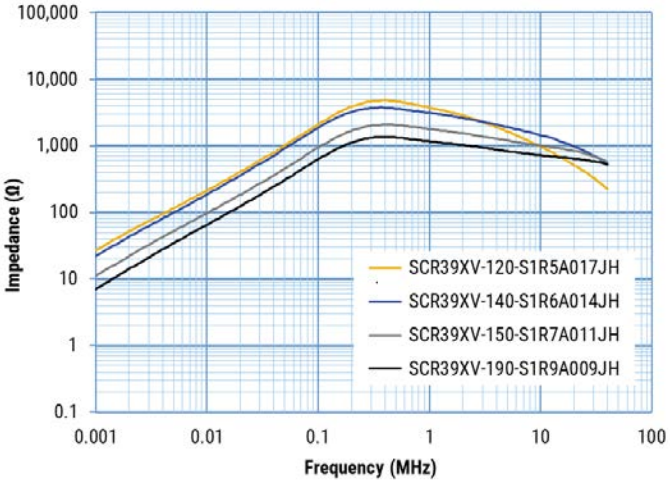
Packaging

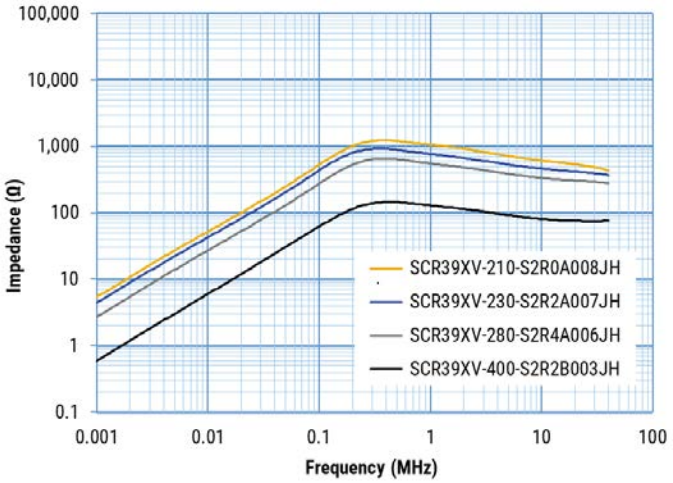
Type	Packaging Type	Pieces Per Box
SCF39XV-S	Tray	48
SCR39XV-S		
SCT39XV-S		

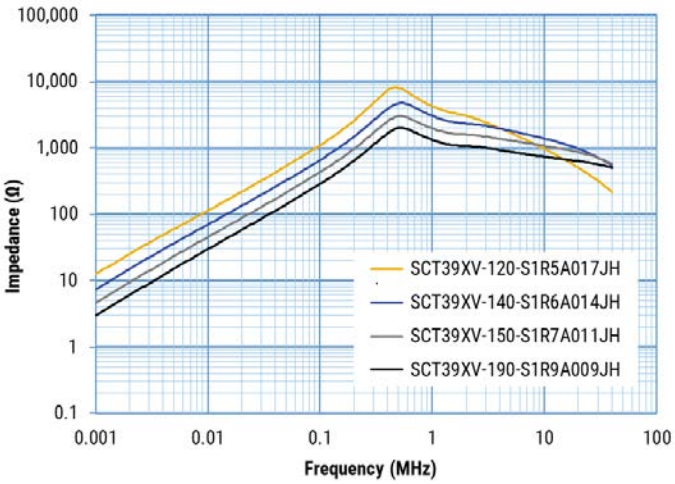
Frequency Characteristics

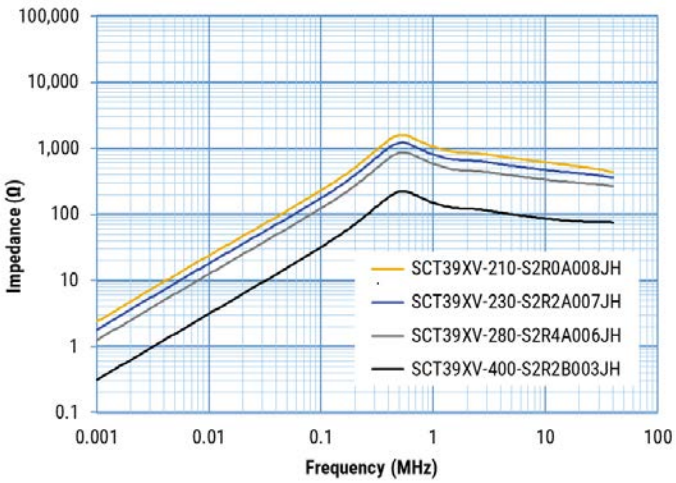








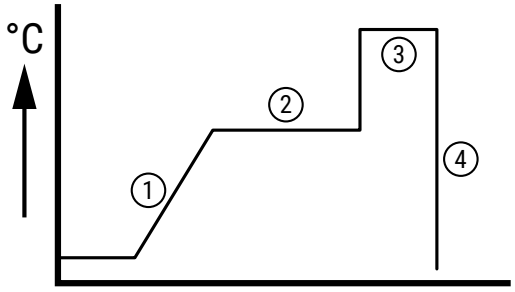




Recommend Solder Condition

Soldering method	Temperature	Soldering time	Number of times
Solder iron	400°C maximum	3 seconds maximum	2 times
Dip soldering	260°C maximum	3 seconds maximum	2 times
Flow soldering	See Below	See Below	See Below

Flow Soldering Condition



① Reserve Temperature
② Preheat Temperature: 80~110°C Time: 120 seconds
③ Soak Temperature: 250°C Time: 8 seconds
④ Cooling

Solder conditions are for reference only and should be confirmed by the customer there is no problem.

Temperature Rise Measuring Method

Connect the cable to the choke by soldering and cool it to room temperature. Also, N1, N2 and N3 are shorted.
In order to prevent temperature changes due to air convections, a rated current is applied to the choke inside the container (container size: about 550 x 450 x 300 mm).

At that time, the temperature of the inner diameter of the choke and the ambient temperature are measured with a thermocouple and recorded with a data logger.

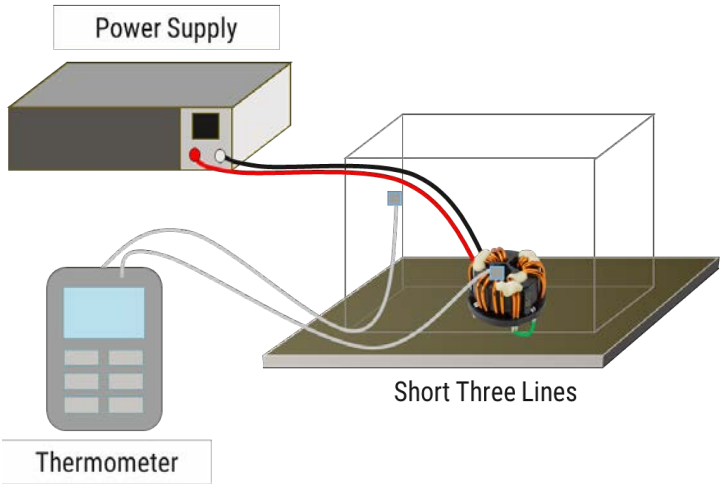


Figure 1 - Measurement system

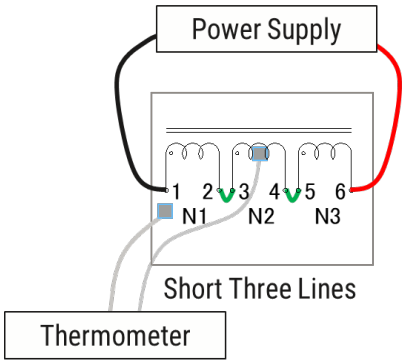


Figure 2 - Schematics

After confirming that the temperature of the CMC has stabilized, turn off the power and calculate the temperature rise value from the measured data using the following formula.

$$T = (t_2 - t_{a2}) - (t_1 - t_{a1})$$

And then,

T : Temperature rising (°C)
t_1 : Initial temperature of CMC (°C)
t_2 : Temperature of CMC when current is applied (°C)
t_{a1} : Initial ambient temperature (°C)
t_{a2} : Ambient temperature when current is applied (°C)

AC Line Filters

Common Mode SCF39XV-Y, SCR39XV-Y & SCT39XV-Y Three-Phase 4 Wires Coils, Automotive Grade

Overview

The KEMET SCF39XV-Y, SCR39XV-Y and SCT39XV-Y three-phase 4 wires coils are common mode chokes with a wide variety of characteristics for automotive and harsh environment industrial application. These toroidal coils are designed with nanocrystalline metal or Mn-Zn ferrite cores and are useful in various noise countermeasure fields.

Applications

- On board charger for EV/PHEV
- Wireless charging systems with 85 kHz
- Medium power drives for steering, air conditioning and mild hybrid 48 V systems
- High voltage automotive and harsh environment industrial EMI filtering

Benefits

- Nanocrystalline metal core (SCF39XV-Y)
- Mn-Zn ferrite S15H (SCR39XV-Y)
- Mn-Zn ferrite 7HT (SCT39XV-Y)
- High rated voltage up to 1,000 V AC/DC
- Ultra-high inductance (SCF39XV-Y)
- Ultra-high permeability (SCR39XV-Y)
- Operating temperature range from −40°C to +150°C (SCF39XV-Y and SCT39XV-Y)
- Operating temperature range from −40°C to +120°C (SCR39XV-Y)
- UL 94 V–0 flame retardant rated base and cap
- AEC-Q200 qualified

Part Number System

SC	F	39	XV-	100-	Y	1R0	A	008	JH
Series	Core Material Code	Outer Core Diameter (mm)	Approval	Rated Current (A)	Phase	Wire Diameter (mm)	Windings	Number of Turns	Terminal Base Type
SC	F = Nanocrystal core R = Mn-Zn ferrite core S15H T = Mn-Zn ferrite core 7HT	39 = 39 mm ø	XV = AEC-Q200	xxx- = xx.x A Examples: 110 = 11.0 A 400 = 40.0 A	Y = Three-phase 4 wires	R = Decimal point Examples: 1R4 = 1.4 mm 2R0 = 2.0 mm	A = Single B = Double	00x = x turns 0xx = xx turns Examples: 003 = 3 turns 008 = 8 turns	JH = Horizontal type

Magnetic Permeability of Ferrite Material

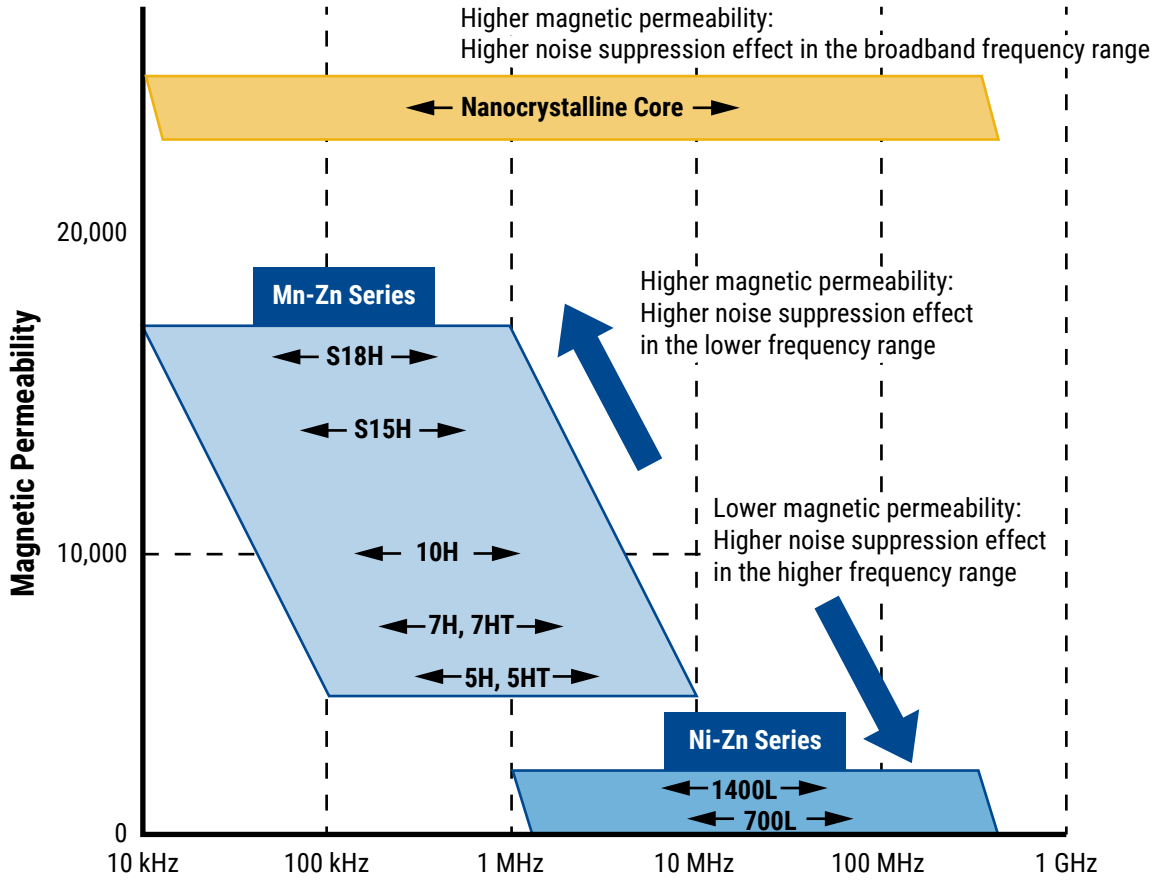
In order to achieve efficient noise reduction, it is important to select the material according to the target frequency band. Depending on its magnetic permeability, a particular ferrite material or metal material will be effective in a certain frequency band. A schematic representation of the relationship between the magnetic permeability of each material and the corresponding effective band range is shown in Figure 1.

Materials with higher magnetic permeability are effective in the lower frequency range, while those with lower magnetic permeability are effective in the higher frequency range. Thus, Mn-Zn products are mainly used for reducing conduction noise, while Ni-Zn products are commonly used for radiation noise countermeasures. Metal materials, however, are effective throughout the broadband frequency range, in low as well as high frequencies.

The effective frequency range varies depending on core shape, size, and number of windings. This frequency dependence of the magnetic permeability as shown in the figure serves for reference purposes only. It should be tested on the actual device to determine its effectiveness.

S18H, S15H, 10H, 7H, 7HT, 5H, 5HT, 1400L, and 700L are KEMET's proprietary ferrite material names. Other materials are available upon request.

Figure 1 - Relationship between the magnetic permeability of each material and its effective frequency range



Dimensions – Millimeters

Figure 1

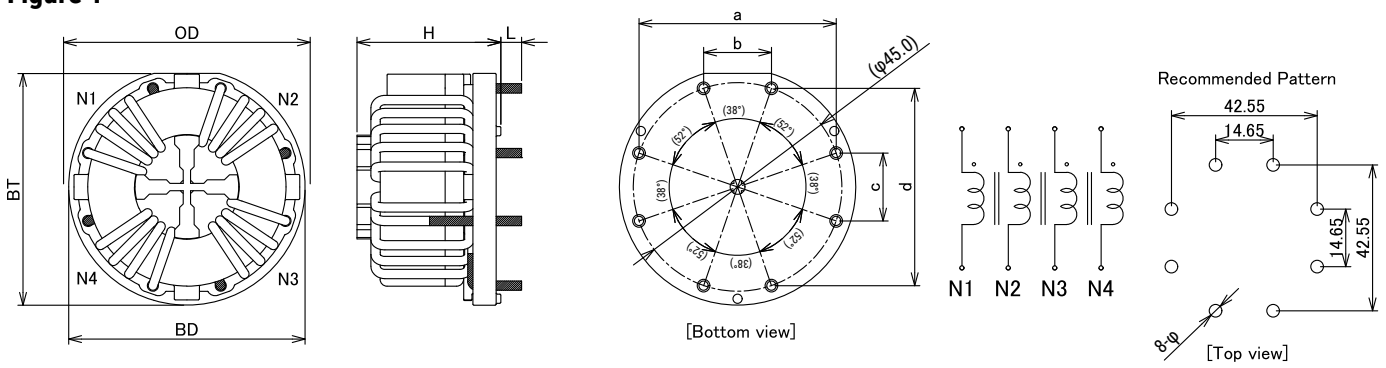
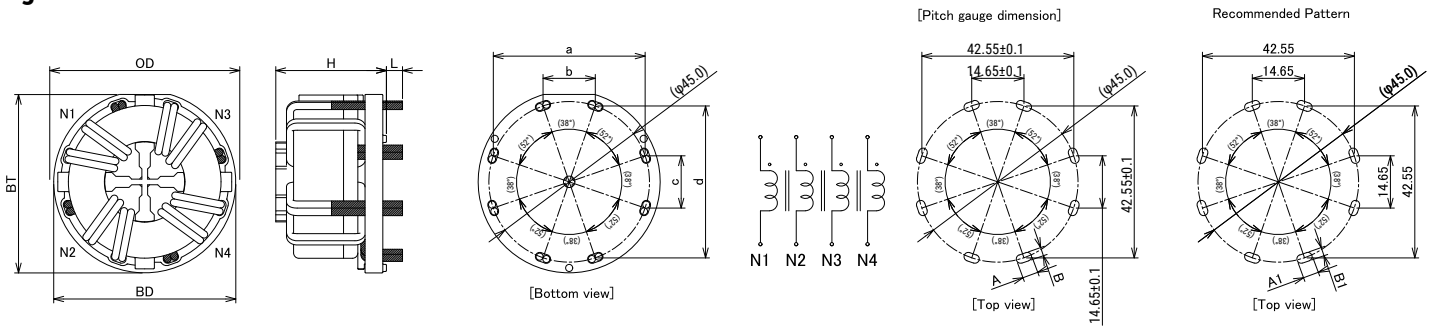


Figure 2



Part Number	Dimensions			Base Dimensions[2]		Pin Pitch[3]				Pitch Gauge[4]		Recommended Hole Pattern[5]			Figure
	OD Maximum	H[1]	L	BD	BT	a	b	c	d	A	B	φ	A1	B1	
SCF39XV-110-Y1R4A008JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	42.55±0.6	14.65±0.6	14.65±0.6	42.55±0.6	-	-	1.9	-	-	Fig. 1
SCF39XV-140-Y1R6A007JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	42.55±0.6	14.65±0.6	14.65±0.6	42.55±0.6	-	-	2.2	-	-	Fig. 1
SCF39XV-170-Y1R8A006JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	42.55±0.6	14.65±0.6	14.65±0.6	42.55±0.6	-	-	2.5	-	-	Fig. 1
SCF39XV-230-Y2R2A005JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	42.55±0.6	14.65±0.6	14.65±0.6	42.55±0.6	-	-	3.0	-	-	Fig. 1
SCF39XV-290-Y2R4A004JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	42.55±0.6	14.65±0.6	14.65±0.6	42.55±0.6	-	-	3.2	-	-	Fig. 1
SCF39XV-400-Y2R0B003JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	(42.55)	(14.65)	(14.65)	(42.55)	5.1±0.1	2.8±0.1	-	5.3	3.0	Fig. 2
SCR39XV-110-Y1R4A008JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	42.55±0.6	14.65±0.6	14.65±0.6	42.55±0.6	-	-	1.9	-	-	Fig. 1
SCR39XV-140-Y1R6A007JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	42.55±0.6	14.65±0.6	14.65±0.6	42.55±0.6	-	-	2.2	-	-	Fig. 1
SCR39XV-170-Y1R8A006JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	42.55±0.6	14.65±0.6	14.65±0.6	42.55±0.6	-	-	2.5	-	-	Fig. 1
SCR39XV-230-Y2R2A005JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	42.55±0.6	14.65±0.6	14.65±0.6	42.55±0.6	-	-	3.0	-	-	Fig. 1
SCR39XV-290-Y2R4A004JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	42.55±0.6	14.65±0.6	14.65±0.6	42.55±0.6	-	-	3.2	-	-	Fig. 1
SCR39XV-400-Y2R0B003JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	(42.55)	(14.65)	(14.65)	(42.55)	5.1±0.1	2.8±0.1	-	5.3	3.0	Fig. 2
SCT39XV-110-Y1R4A008JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	42.55±0.6	14.65±0.6	14.65±0.6	42.55±0.6	-	-	1.9	-	-	Fig. 1
SCT39XV-140-Y1R6A007JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	42.55±0.6	14.65±0.6	14.65±0.6	42.55±0.6	-	-	2.2	-	-	Fig. 1
SCT39XV-170-Y1R8A006JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	42.55±0.6	14.65±0.6	14.65±0.6	42.55±0.6	-	-	2.5	-	-	Fig. 1
SCT39XV-230-Y2R2A005JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	42.55±0.6	14.65±0.6	14.65±0.6	42.55±0.6	-	-	3.0	-	-	Fig. 1
SCT39XV-290-Y2R4A004JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	42.55±0.6	14.65±0.6	14.65±0.6	42.55±0.6	-	-	3.2	-	-	Fig. 1
SCT39XV-400-Y2R0B003JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	51.0±0.5	50.0±0.5	(42.55)	(14.65)	(14.65)	(42.55)	5.1±0.1	2.8±0.1	-	5.3	3.0	Fig. 2

[1] *The lower limit dimension is not 100% inspected in production process.*

[2] *The terminal base dimension is not 100% inspected in production process.*

[3] *Inspection by using pin-pitch gauge.*

[4] *Inspection by using pin-pitch gauge as shown in Figure 2.*

[5] *Values are for reference only, not guaranteed.*

Environmental Compliance

All KEMET AC line filters are RoHS Compliant.

Performance Characteristics

Item	Performance Characteristics
Rated Voltage	1,000 VAC/VDC
Withstanding Voltage	2,400 VAC (2 seconds, between lines)
Insulation Resistance	>100 MΩ at 1,000 VDC (between lines)
Rated Current Range	11 – 40 A
Rated Inductance Range	0.23 – 1.6 mH +50%, −30% (SCF39XV-Y) 0.118 – 0.84 mH ±35% (SCR39XV-Y) 0.067 – 0.476 mH ±30% (SCT39XV-Y)
Inductance Measurement Condition	100 kHz
Operating Temperature Range	−40°C to +150°C (include self temperature rise) (SCF39XV-Y & SCT39XV-Y) −40°C to +120°C (include self temperature rise) (SCR39XV-Y)

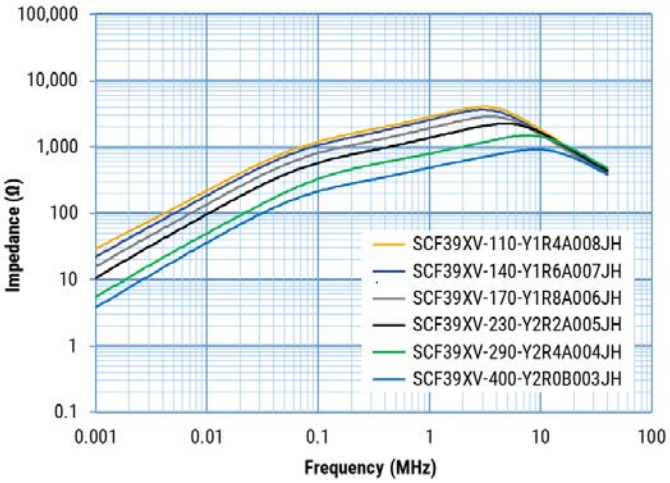
Table 1 – Ratings & Part Number Reference

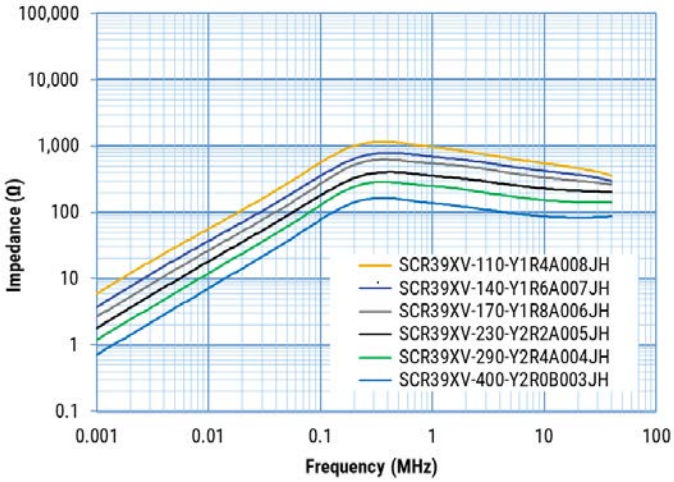
Part Number	Rated Voltage AC/DC (V)	Rated Current (A)	Inductance 100kHz (mH)	DC Resistance/ Line (mΩ)	Temperature Rise (K) Reference	Wire Diameter (mm)	Weight (g) Approximate
SCF39XV-110-Y1R4A008JH	1,000	11	1.600 +50%, -30%	5.870 ±13%	50	1.4	108.8
SCF39XV-140-Y1R6A007JH	1,000	14	1.200 +50%, -30%	4.040 ±13%	50	1.6	114.1
SCF39XV-170-Y1R8A006JH	1,000	17	0.900 +50%, -30%	2.830 ±13%	50	1.8	118.9
SCF39XV-230-Y2R2A005JH	1,000	23	0.620 +50%, -30%	1.610 ±13%	50	2.2	130.9
SCF39XV-290-Y2R4A004JH	1,000	29	0.400 +50%, -30%	1.100 ±13%	50	2.4	130.3
SCF39XV-400-Y2R0B003JH	1,000	40	0.230 +50%, -30%	0.530 ±23%	45	2.0 x 2 Parallel	133.4
SCR39XV-110-Y1R4A008JH	1,000	11	0.840 ±35%	5.870 ±13%	50	1.4	100.5
SCR39XV-140-Y1R6A007JH	1,000	14	0.640 ±35%	4.040 ±13%	50	1.6	105.4
SCR39XV-170-Y1R8A006JH	1,000	17	0.470 ±35%	2.830 ±13%	50	1.8	109.8
SCR39XV-230-Y2R2A005JH	1,000	23	0.330 ±35%	1.610 ±13%	50	2.2	120.9
SCR39XV-290-Y2R4A004JH	1,000	29	0.210 ±35%	1.100 ±13%	50	2.4	120.4
SCR39XV-400-Y2R0B003JH	1,000	40	0.118 ±35%	0.530 ±23%	45	2.0 x 2 Parallel	123.2
SCT39XV-110-Y1R4A008JH	1,000	11	0.476 ±30%	5.870 ±13%	50	1.4	100.4
SCT39XV-140-Y1R6A007JH	1,000	14	0.365 ±30%	4.040 ±13%	50	1.6	105.3
SCT39XV-170-Y1R8A006JH	1,000	17	0.268 ±30%	2.830 ±13%	50	1.8	109.7
SCT39XV-230-Y2R2A005JH	1,000	23	0.187 ±30%	1.610 ±13%	50	2.2	120.8
SCT39XV-290-Y2R4A004JH	1,000	29	0.119 ±30%	1.100 ±13%	50	2.4	120.3
SCT39XV-400-Y2R0B003JH	1,000	40	0.067 ±30%	0.530 ±23%	45	2.0 x 2 Parallel	123.1
Part Number	**Rated Voltage AC/DC (V)**	**Rated Current (A)**	**Inductance 100kHz (mH)**	**DC Resistance/ Line (mΩ)**	**Temperature Rise (K) Reference**	**Wire Diameter (mm)**	**Weight (g) Approximate**

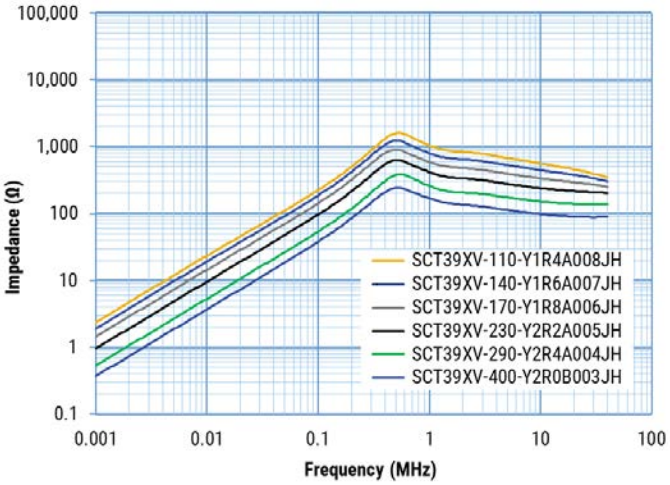
Packaging

Type	Packaging Type	Pieces Per Box
SCF39XV-Y	Tray	48
SCR39XV-Y		
SCT39XV-Y		

Frequency Characteristics



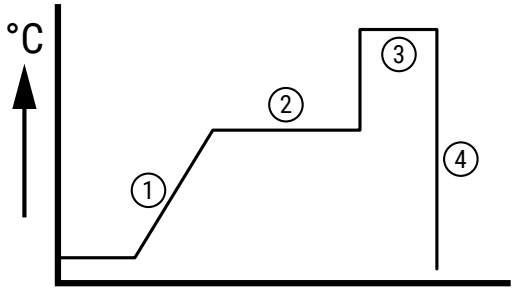




Recommend Solder Condition

Soldering method	Temperature	Soldering time	Number of times
Solder iron	400°C maximum	3 seconds maximum	2 times
Dip soldering	260°C maximum	3 seconds maximum	2 times
Flow soldering	See Below	See Below	See Below

Flow Soldering Condition



① Reserve Temperature
② Preheat Temperature: 80~110°C Time: 120 seconds
③ Soak Temperature: 250°C Time: 8 seconds
④ Cooling

Solder conditions are for reference only and should be confirmed by the customer there is no problem.

Temperature Rise Measuring Method

Connect the cable to the choke by soldering and cool it to room temperature. Also, N1, N2, N3 and N4 are shorted.
In order to prevent temperature changes due to air convections, a rated current is applied to the choke inside the container (container size: about 550 x 450 x 300 mm).

At that time, the temperature of the inner diameter of the choke and the ambient temperature are measured with a thermocouple and recorded with a data logger.

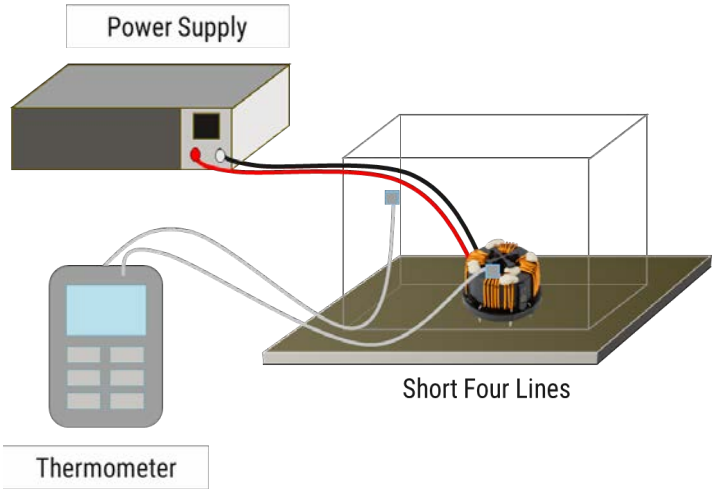


Figure 1 - Measurement system

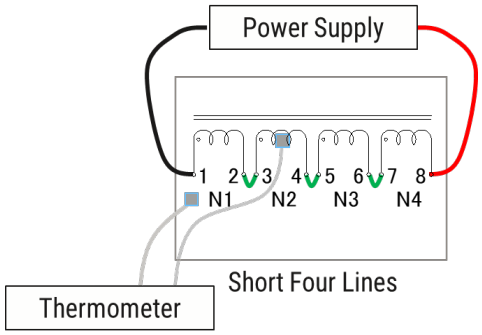


Figure 2 - Schematics

After confirming that the temperature of the choke has stabilized, turn off the power and calculate the temperature rise value from the measured data using the following formula.

$$T = (t_2 - t_{a2}) - (t_1 - t_{a1})$$

And then,

T : Temperature rising (°C)

t_1 : Initial temperature of the choke (°C)

t_2 : Temperature of the choke when current is applied (°C)

t_{a1} : Initial ambient temperature (°C)

t_{a2} : Ambient temperature when current is applied (°C)

AC Line Filters

Common Mode SCF39XV-Z, SCR39XV-Z & SCT39XV-Z Three-Phase 4 Wires Asymmetric Type Coils, Automotive Grade

Overview

The KEMET SCF39XV-Z, SCR39XV-Z and SCT39XV-Z three-phase 4 wires asymmetric type coils are common mode chokes with a wide variety of characteristics for automotive and harsh environment industrial application. These toroidal coils are designed with nanocrystalline metal or Mn-Zn ferrite cores and are useful in various noise countermeasure fields.

Applications

- On board charger for EV/PHEV
- Wireless charging systems with 85 kHz
- Medium power drives for steering, air conditioning and mild hybrid 48 V systems
- High voltage automotive and harsh environment industrial EMI filtering

Benefits

- Nanocrystalline metal core (SCF39XV-Z)
- Mn-Zn Ferrite S15H (SCR39XV-Z)
- Mn-Zn Ferrite 7HT (SCT39XV-Z)
- High rated voltage up to 1,000 V AC/DC
- Ultra-high inductance (SCF39XV-Z)
- Ultra-high permeability (SCR39XV-Z)
- Operating temperature range from −40°C to +150°C (SCF39XV-Z and SCT39XV-Z)
- Operating temperature range from −40°C to +120°C (SCR39XV-Z)
- UL 94 V–0 flame retardant rated base and cap
- AEC-Q200 qualified

Part Number System

SC	F	39	XV-	200-	Z	2R1	A	012	JH
Series	Core Material Code	Outer Core Diameter (mm)	Approval	Rated Current (A)	Phase	Wire Diameter (mm)	Windings	Number of Turns	Terminal Base Type
SC	F = Nanocrystal core R = Mn-Zn ferrite core S15H T = Mn-Zn ferrite core 7HT	39 = 39 mm ø	XV = AEC-Q200	xxx- = xx.x A Examples: 080 = 8.0 A 440 = 44.0 A	Z = Three-phase 4 wires (asymmetric type)	R = Decimal point Examples: 2R0 = 2.0 mm 2R1 = 2.1 mm	A = Single B = Double	00x = x turns 0xx = xx turns Examples: 005 = 5 turns 012 = 12 turns	JH = Horizontal type

Magnetic Permeability of Ferrite Material

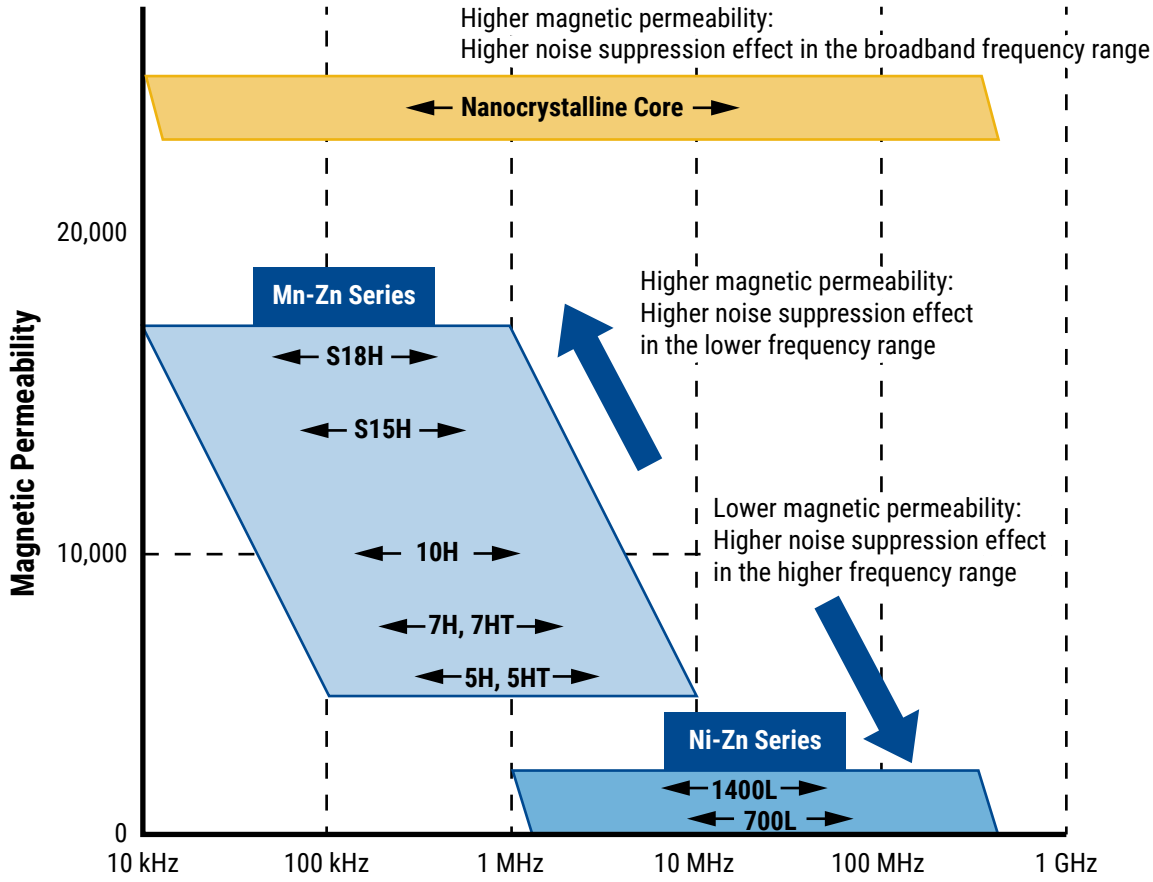
In order to achieve efficient noise reduction, it is important to select the material according to the target frequency band. Depending on its magnetic permeability, a particular ferrite material or metal material will be effective in a certain frequency band. A schematic representation of the relationship between the magnetic permeability of each material and the corresponding effective band range is shown in Figure 1.

Materials with higher magnetic permeability are effective in the lower frequency range, while those with lower magnetic permeability are effective in the higher frequency range. Thus, Mn-Zn products are mainly used for reducing conduction noise, while Ni-Zn products are commonly used for radiation noise countermeasures. Metal materials, however, are effective throughout the broadband frequency range, in low as well as high frequencies.

The effective frequency range varies depending on core shape, size, and number of windings. This frequency dependence of the magnetic permeability as shown in the figure serves for reference purposes only. It should be tested on the actual device to determine its effectiveness.

S18H, S15H, 10H, 7H, 7HT, 5H, 5HT, 1400L, and 700L are KEMET's proprietary ferrite material names. Other materials are available upon request.

Figure 1 - Relationship between the magnetic permeability of each material and its effective frequency range



Dimensions – Millimeters

Figure 1

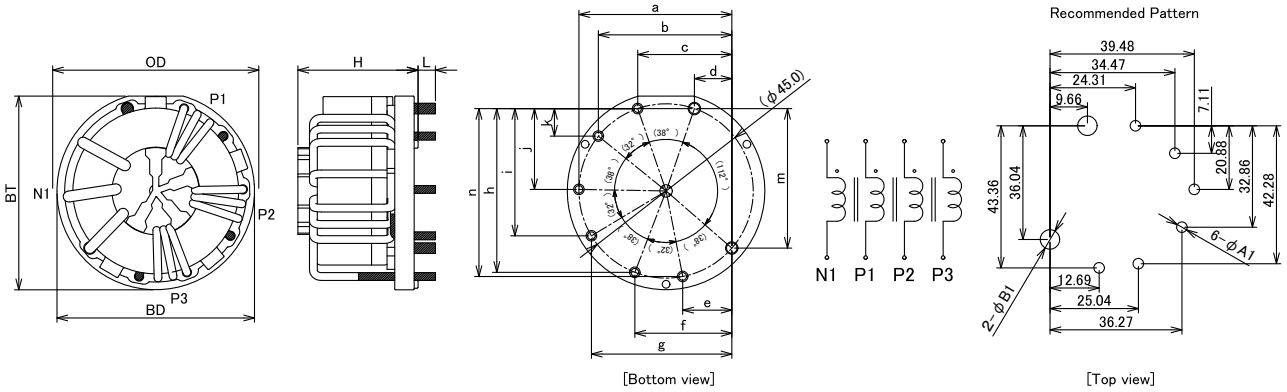
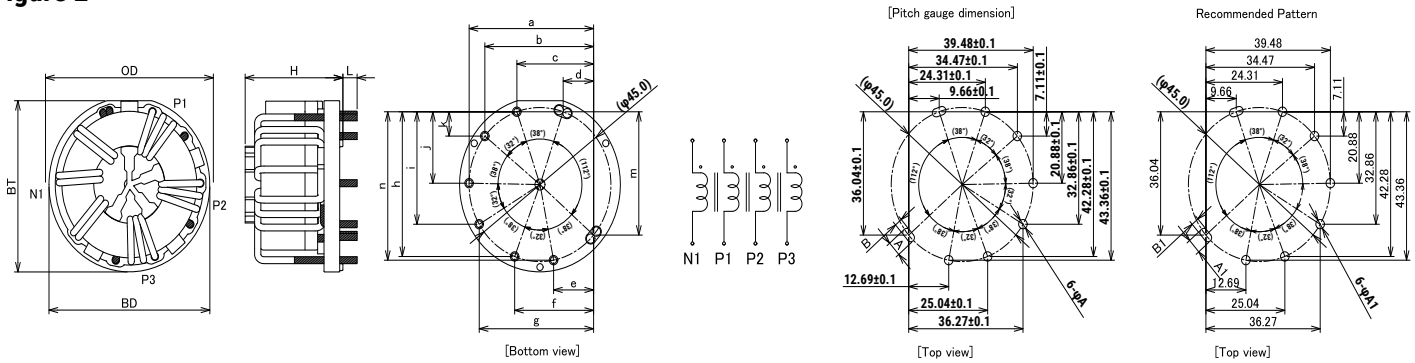


Figure 2



Part Number	Dimensions			Pin Pitch[3]													Figure
	OD Maximum	H[1]	L	a	b	c	d	e	f	g	h	i	j	k	n	m	
SCF39XV-200-Z2R1A012JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	39.48±0.6	34.47±0.6	24.31±0.6	9.66±0.6	12.69±0.6	25.04±0.6	36.27±0.6	42.28±0.6	32.86±0.6	20.88±0.6	7.11±0.6	43.36±0.6	36.04±0.6	Fig. 1
SCF39XV-240-Z2R3A010JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	39.48±0.6	34.47±0.6	24.31±0.6	9.66±0.6	12.69±0.6	25.04±0.6	36.27±0.6	42.28±0.6	32.86±0.6	20.88±0.6	7.11±0.6	43.36±0.6	36.04±0.6	Fig. 1
SCF39XV-270-Z2R4A009JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	39.48±0.6	34.47±0.6	24.31±0.6	9.66±0.6	12.69±0.6	25.04±0.6	36.27±0.6	42.28±0.6	32.86±0.6	20.88±0.6	7.11±0.6	43.36±0.6	36.04±0.6	Fig. 1
SCF39XV-310-Z1R8B008JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	(39.48)	(34.47)	(24.31)	(9.66)	(12.69)	(25.04)	(36.27)	(42.28)	(32.86)	(20.88)	(7.11)	(43.36)	(36.04)	Fig. 2
SCF39XV-350-Z1R9B007JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	(39.48)	(34.47)	(24.31)	(9.66)	(12.69)	(25.04)	(36.27)	(42.28)	(32.86)	(20.88)	(7.11)	(43.36)	(36.04)	Fig. 2
SCF39XV-440-Z2R0B005JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	(39.48)	(34.47)	(24.31)	(9.66)	(12.69)	(25.04)	(36.27)	(42.28)	(32.86)	(20.88)	(7.11)	(43.36)	(36.04)	Fig. 2
SCF39XV-500-Z2R4B004JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	(39.48)	(34.47)	(24.31)	(9.66)	(12.69)	(25.04)	(36.27)	(42.28)	(32.86)	(20.88)	(7.11)	(43.36)	(36.04)	Fig. 2
SCR39XV-200-Z2R1A012JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	39.48±0.6	34.47±0.6	24.31±0.6	9.66±0.6	12.69±0.6	25.04±0.6	36.27±0.6	42.28±0.6	32.86±0.6	20.88±0.6	7.11±0.6	43.36±0.6	36.04±0.6	Fig. 1
SCR39XV-240-Z2R3A010JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	39.48±0.6	34.47±0.6	24.31±0.6	9.66±0.6	12.69±0.6	25.04±0.6	36.27±0.6	42.28±0.6	32.86±0.6	20.88±0.6	7.11±0.6	43.36±0.6	36.04±0.6	Fig. 1
SCR39XV-270-Z2R4A009JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	39.48±0.6	34.47±0.6	24.31±0.6	9.66±0.6	12.69±0.6	25.04±0.6	36.27±0.6	42.28±0.6	32.86±0.6	20.88±0.6	7.11±0.6	43.36±0.6	36.04±0.6	Fig. 1
SCR39XV-310-Z1R8B008JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	(39.48)	(34.47)	(24.31)	(9.66)	(12.69)	(25.04)	(36.27)	(42.28)	(32.86)	(20.88)	(7.11)	(43.36)	(36.04)	Fig. 2
SCR39XV-350-Z1R9B007JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	(39.48)	(34.47)	(24.31)	(9.66)	(12.69)	(25.04)	(36.27)	(42.28)	(32.86)	(20.88)	(7.11)	(43.36)	(36.04)	Fig. 2

[1] The lower limit dimension is not 100% inspected in production process.
[2] The terminal base dimension is not 100% inspected in production process.
[3] Inspection by using pin-pitch gauge.
[4] Inspection by using pin-pitch gauge as shown in Figure 2.
[5] Values are for reference only, not guaranteed.

Dimensions – Millimeters cont.

Figure 1

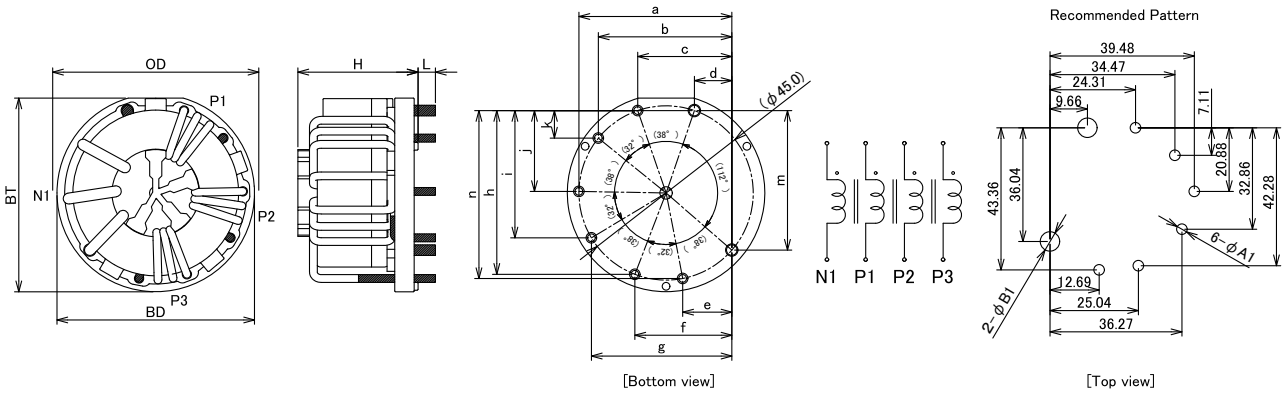
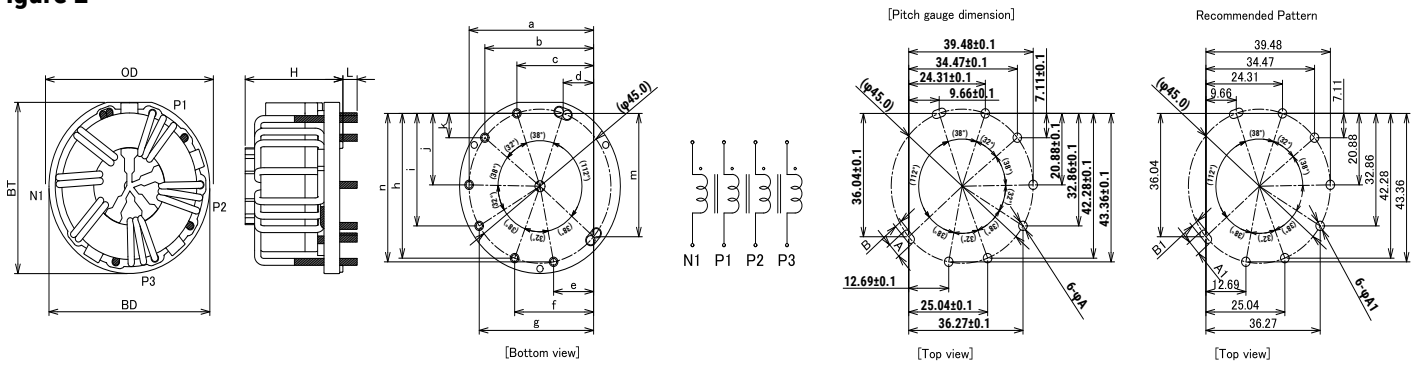


Figure 2



Part Number	Dimensions			Pin Pitch[3]													Figure
	OD Maximum	H[1]	L	a	b	c	d	e	f	g	h	i	j	k	n	m	
SCR39XV-440-Z2R0B005JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	(39.48)	(34.47)	(24.31)	(9.66)	(12.69)	(25.04)	(36.27)	(42.28)	(32.86)	(20.88)	(7.11)	(43.36)	(36.04)	Fig. 2
SCR39XV-500-Z2R4B004JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	(39.48)	(34.47)	(24.31)	(9.66)	(12.69)	(25.04)	(36.27)	(42.28)	(32.86)	(20.88)	(7.11)	(43.36)	(36.04)	Fig. 2
SCT39XV-200-Z2R1A012JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	39.48±0.6	34.47±0.6	24.31±0.6	9.66±0.6	12.69±0.6	25.04±0.6	36.27±0.6	42.28±0.6	32.86±0.6	20.88±0.6	7.11±0.6	43.36±0.6	36.04±0.6	Fig. 1
SCT39XV-240-Z2R3A010JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	39.48±0.6	34.47±0.6	24.31±0.6	9.66±0.6	12.69±0.6	25.04±0.6	36.27±0.6	42.28±0.6	32.86±0.6	20.88±0.6	7.11±0.6	43.36±0.6	36.04±0.6	Fig. 1
SCT39XV-270-Z2R4A009JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	39.48±0.6	34.47±0.6	24.31±0.6	9.66±0.6	12.69±0.6	25.04±0.6	36.27±0.6	42.28±0.6	32.86±0.6	20.88±0.6	7.11±0.6	43.36±0.6	36.04±0.6	Fig. 1
SCT39XV-310-Z1R8B008JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	(39.48)	(34.47)	(24.31)	(9.66)	(12.69)	(25.04)	(36.27)	(42.28)	(32.86)	(20.88)	(7.11)	(43.36)	(36.04)	Fig. 2
SCT39XV-350-Z1R9B007JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	(39.48)	(34.47)	(24.31)	(9.66)	(12.69)	(25.04)	(36.27)	(42.28)	(32.86)	(20.88)	(7.11)	(43.36)	(36.04)	Fig. 2
SCT39XV-440-Z2R0B005JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	(39.48)	(34.47)	(24.31)	(9.66)	(12.69)	(25.04)	(36.27)	(42.28)	(32.86)	(20.88)	(7.11)	(43.36)	(36.04)	Fig. 2
SCT39XV-500-Z2R4B004JH	53.0	31.0 +1.0/-0.6	4.50 ±0.5	(39.48)	(34.47)	(24.31)	(9.66)	(12.69)	(25.04)	(36.27)	(42.28)	(32.86)	(20.88)	(7.11)	(43.36)	(36.04)	Fig. 2

[1] The lower limit dimension is not 100% inspected in production process.
[2] The terminal base dimension is not 100% inspected in production process.
[3] Inspection by using pin-pitch gauge.
[4] Inspection by using pin-pitch gauge as shown in Figure 2.
[5] Values are for reference only, not guaranteed.

Dimensions – Millimeters cont.

Figure 1

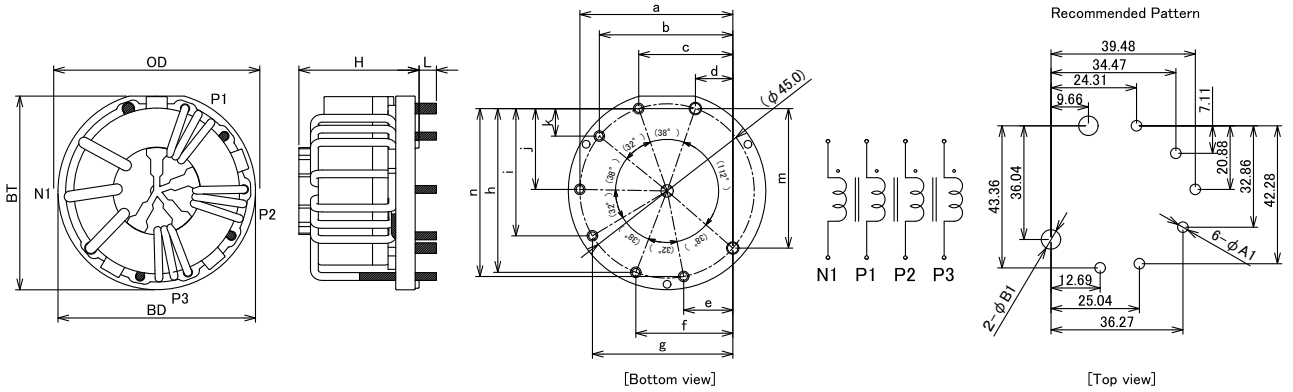
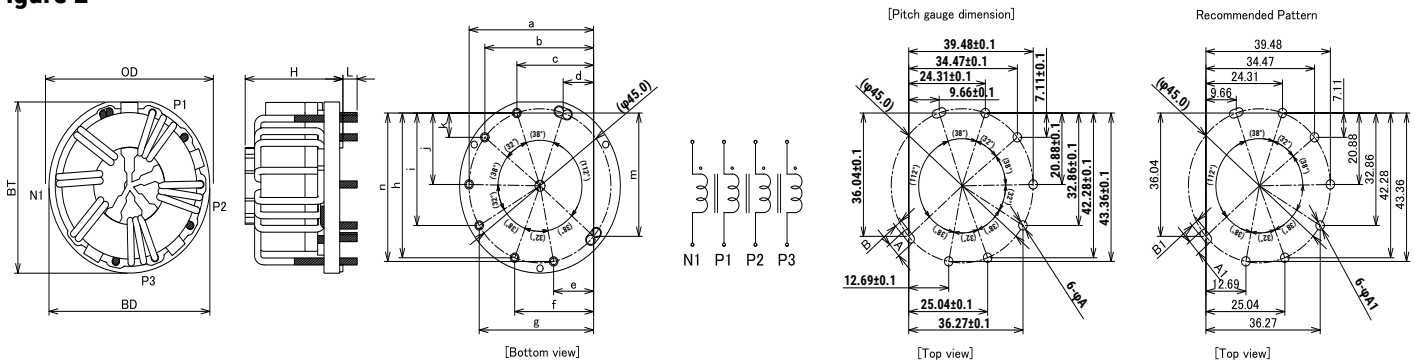


Figure 2



Part Number	Base Dimensions[2]		Pitch Gauge[4]			Recommended Hole Pattern[5]				Figure
	BD	BT	φA	A	B	φA1	φB1	A1	B1	
SCF39XV-200-Z2R1A012JH	51.0±0.5	50.0±0.5	-	-	-	1.7	2.8	-	-	Fig. 1
SCF39XV-240-Z2R3A010JH	51.0±0.5	50.0±0.5	-	-	-	1.8	3.1	-	-	Fig. 1
SCF39XV-270-Z2R4A009JH	51.0±0.5	50.0±0.5	-	-	-	1.9	3.2	-	-	Fig. 1
SCF39XV-310-Z1R8B008JH	51.0±0.5	50.0±0.5	2.0±0.1	4.9±0.1	2.6±0.1	2.1	-	5.1	2.8	Fig. 2
SCF39XV-350-Z1R9B007JH	51.0±0.5	50.0±0.5	2.1±0.1	5.0±0.1	2.7±0.1	2.2	-	5.2	2.9	Fig. 2
SCF39XV-440-Z2R0B005JH	51.0±0.5	50.0±0.5	2.2±0.1	5.1±0.1	2.8±0.1	2.3	-	5.3	3.0	Fig. 2
SCF39XV-500-Z2R4B004JH	51.0±0.5	50.0±0.5	2.5±0.1	5.8±0.1	3.2±0.1	2.7	-	6.0	3.4	Fig. 2
SCR39XV-200-Z2R1A012JH	51.0±0.5	50.0±0.5	-	-	-	1.7	2.8	-	-	Fig. 1
SCR39XV-240-Z2R3A010JH	51.0±0.5	50.0±0.5	-	-	-	1.8	3.1	-	-	Fig. 1
SCR39XV-270-Z2R4A009JH	51.0±0.5	50.0±0.5	-	-	-	1.9	3.2	-	-	Fig. 1
SCR39XV-310-Z1R8B008JH	51.0±0.5	50.0±0.5	2.0±0.1	4.9±0.1	2.6±0.1	2.1	-	5.1	2.8	Fig. 2

[1] The lower limit dimension is not 100% inspected in production process.
[2] The terminal base dimension is not 100% inspected in production process.
[3] Inspection by using pin-pitch gauge.
[4] Inspection by using pin-pitch gauge as shown in Figure 2.
[5] Values are for reference only, not guaranteed.

Dimensions – Millimeters cont.

Figure 1

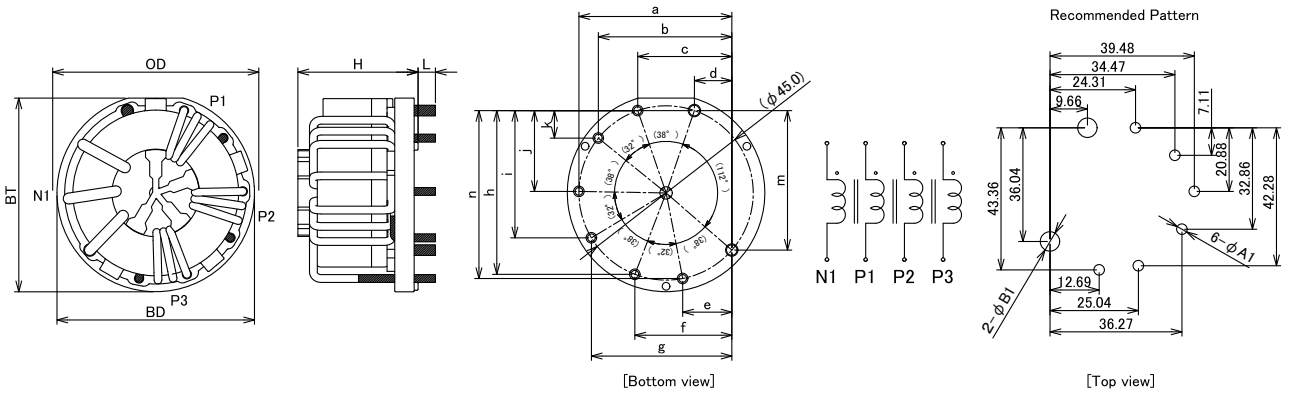
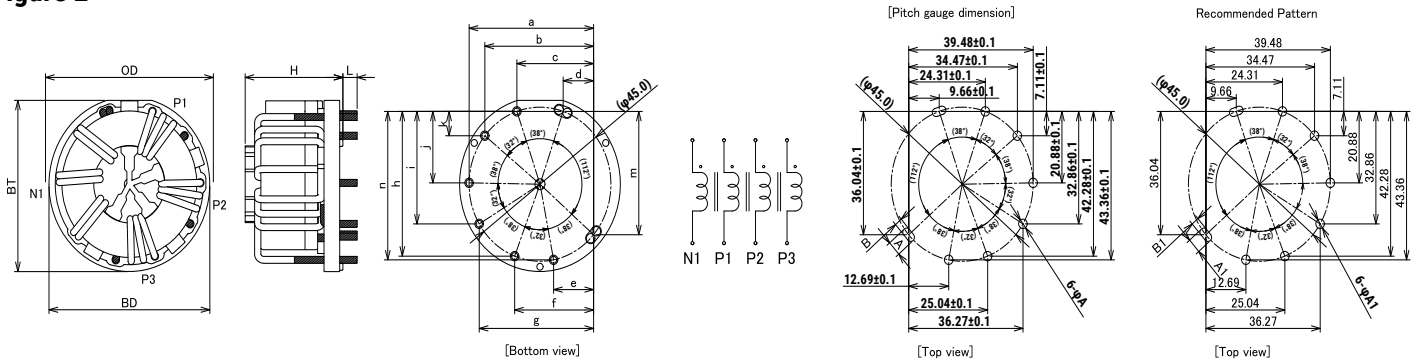


Figure 2



Part Number	Base Dimensions[2]		Pitch Gauge[4]			Recommended Hole Pattern[5]				Figure
	BD	BT	φA	A	B	φA1	φB1	A1	B1	
SCR39XV-350-Z1R9B007JH	51.0±0.5	50.0±0.5	2.1±0.1	5.0±0.1	2.7±0.1	2.2	-	5.2	2.9	Fig. 2
SCR39XV-440-Z2R0B005JH	51.0±0.5	50.0±0.5	2.2±0.1	5.1±0.1	2.8±0.1	2.3	-	5.3	3.0	Fig. 2
SCR39XV-500-Z2R4B004JH	51.0±0.5	50.0±0.5	2.5±0.1	5.8±0.1	3.2±0.1	2.7	-	6.0	3.4	Fig. 2
SCT39XV-200-Z2R1A012JH	51.0±0.5	50.0±0.5	-	-	-	1.7	2.8	-	-	Fig. 1
SCT39XV-240-Z2R3A010JH	51.0±0.5	50.0±0.5	-	-	-	1.8	3.1	-	-	Fig. 1
SCT39XV-270-Z2R4A009JH	51.0±0.5	50.0±0.5	-	-	-	1.9	3.2	-	-	Fig. 1
SCT39XV-310-Z1R8B008JH	51.0±0.5	50.0±0.5	2.0±0.1	4.9±0.1	2.6±0.1	2.1	-	5.1	2.8	Fig. 2
SCT39XV-350-Z1R9B007JH	51.0±0.5	50.0±0.5	2.1±0.1	5.0±0.1	2.7±0.1	2.2	-	5.2	2.9	Fig. 2
SCT39XV-440-Z2R0B005JH	51.0±0.5	50.0±0.5	2.2±0.1	5.1±0.1	2.8±0.1	2.3	-	5.3	3.0	Fig. 2
SCT39XV-500-Z2R4B004JH	51.0±0.5	50.0±0.5	2.5±0.1	5.8±0.1	3.2±0.1	2.7	-	6.0	3.4	Fig. 2

[1] The lower limit dimension is not 100% inspected in production process.
[2] The terminal base dimension is not 100% inspected in production process.
[3] Inspection by using pin-pitch gauge.
[4] Inspection by using pin-pitch gauge as shown in Figure 2.
[5] Values are for reference only, not guaranteed.

Environmental Compliance

All KEMET AC line filters are RoHS Compliant.

Performance Characteristics

Item	Performance Characteristics
Rated Voltage	1,000 VAC/VDC
Withstanding Voltage	2,400 VAC (2 seconds, between lines)
Insulation Resistance	>100 MΩ at 1,000 VDC (between lines)
Rated Current Range	20 – 50 A
Rated Inductance Range	0.4 - 3.6 mH +50%, -30% (SCF39XV-Z) 0.21 - 1.9 mH ±35% (SCR39XV-Z) 0.119 - 1.07 mH ±30% (SCT39XV-Z)
Inductance Measurement Condition	100 kHz
Operating Temperature Range	−40°C to +150°C (include self temperature rise) (SCF39XV-Y & SCT39XV-Z) −40°C to +120°C (include self temperature rise) (SCR39XV-Z)

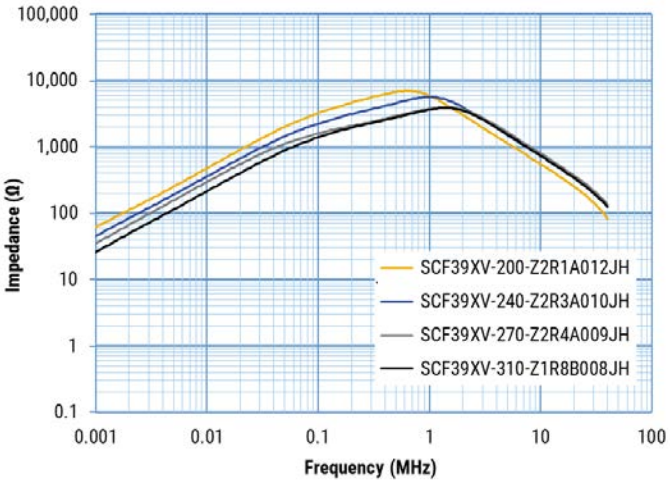
Table 1 – Ratings & Part Number Reference

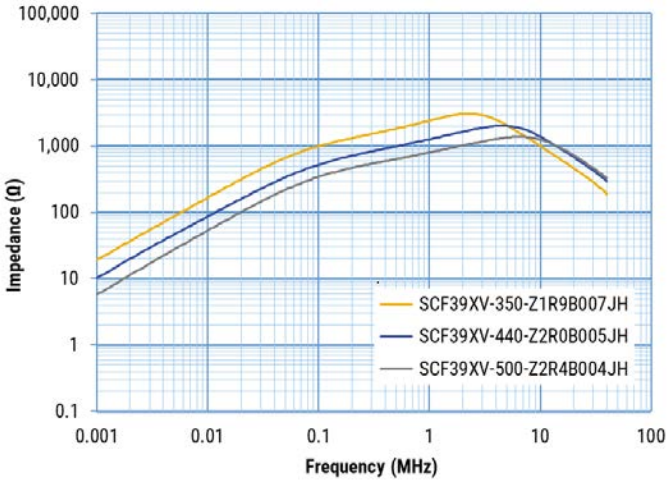
Part Number	Rated Voltage AC/DC (V)	Rated Current (A)	Inductance 100kHz (mH)	DC Resistance/ Line N1 (mΩ)	DC Resistance/ Line P1, P2, P3 (mΩ)	Temperature Rise (K) Reference	Wire Diameter (mm)	Weight (g) Approximate
SCF39XV-200-Z2R1A012JH	1,000	20	3.600 +50%, -30%	4.140 ±13%	11.960 ±13%	45	2.1/1.2	127.5
SCF39XV-240-Z2R3A010JH	1,000	24	2.500 +50%, -30%	2.960 ±13%	8.570 ±13%	50	2.3/1.3	127.8
SCF39XV-270-Z2R4A009JH	1,000	27	2.000 +50%, -30%	2.440 ±13%	6.760 ±13%	50	2.4/1.4	129.4
SCF39XV-310-Z1R8B008JH	1,000	31	1.600 +50%, -30%	1.840 ±23%	5.280 ±13%	50	1.8 x 2 Parallel/1.5	129.6
SCF39XV-350-Z1R9B007JH	1,000	35	1.200 +50%, -30%	1.420 ±23%	4.110 ±13%	45	1.9 x 2 Parallel/1.6	130.1
SCF39XV-440-Z2R0B005JH	1,000	44	0.620 +50%, -30%	0.950 ±23%	2.640 ±13%	50	2.0 x 2 Parallel/1.7	120.2
SCF39XV-500-Z2R4B004JH	1,000	50	0.400 +50%, -30%	0.510 ±23%	1.580 ±13%	45	2.4 x 2 Parallel/2.0	127.6
SCR39XV-200-Z2R1A012JH	1,000	20	1.900 ±35%	4.140 ±13%	11.960 ±13%	45	2.1/1.2	117.7
SCR39XV-240-Z2R3A010JH	1,000	24	1.310 ±35%	2.960 ±13%	8.570 ±13%	50	2.3/1.3	118.1
SCR39XV-270-Z2R4A009JH	1,000	27	1.060 ±35%	2.440 ±13%	6.760 ±13%	50	2.4/1.4	119.5
SCR39XV-310-Z1R8B008JH	1,000	31	0.840 ±35%	1.840 ±23%	5.280 ±13%	50	1.8 x 2 Parallel/1.5	119.7
SCR39XV-350-Z1R9B007JH	1,000	35	0.640 ±35%	1.420 ±23%	4.110 ±13%	45	1.9 x 2 Parallel/1.6	120.2
SCR39XV-440-Z2R0B005JH	1,000	44	0.330 ±35%	0.950 ±23%	2.640 ±13%	50	2.0 x 2 Parallel/1.7	111.1
SCR39XV-500-Z2R4B004JH	1,000	50	0.210 ±35%	0.510 ±23%	1.580 ±13%	45	2.4 x 2 Parallel/2.0	117.8
SCT39XV-200-Z2R1A012JH	1,000	20	1.070 ±30%	4.140 ±13%	11.960 ±13%	45	2.1/1.2	117.6
SCT39XV-240-Z2R3A010JH	1,000	24	0.744 ±30%	2.960 ±13%	8.570 ±13%	50	2.3/1.3	118.0
SCT39XV-270-Z2R4A009JH	1,000	27	0.600 ±30%	2.440 ±13%	6.760 ±13%	50	2.4/1.4	119.4
SCT39XV-310-Z1R8B008JH	1,000	31	0.476 ±30%	1.840 ±23%	5.280 ±13%	50	1.8 x 2 Parallel/1.5	119.6
SCT39XV-350-Z1R9B007JH	1,000	35	0.365 ±30%	1.420 ±23%	4.110 ±13%	45	1.9 x 2 Parallel/1.6	120.1
SCT39XV-440-Z2R0B005JH	1,000	44	0.187 ±30%	0.950 ±23%	2.640 ±13%	50	2.0 x 2 Parallel/1.7	111.0
SCT39XV-500-Z2R4B004JH	1,000	50	0.119 ±30%	0.510 ±23%	1.580 ±13%	45	2.4 x 2 Parallel/2.0	117.7
Part Number	**Rated Voltage AC/DC (V)**	**Rated Current (A)**	**Inductance 100kHz (mH)**	**DC Resistance/ Line N1 (mΩ)**	**DC Resistance/ Line P1, P2, P3 (mΩ)**	**Temperature Rise (K) Reference**	**Wire Diameter (mm)**	**Weight (g) Approximate**

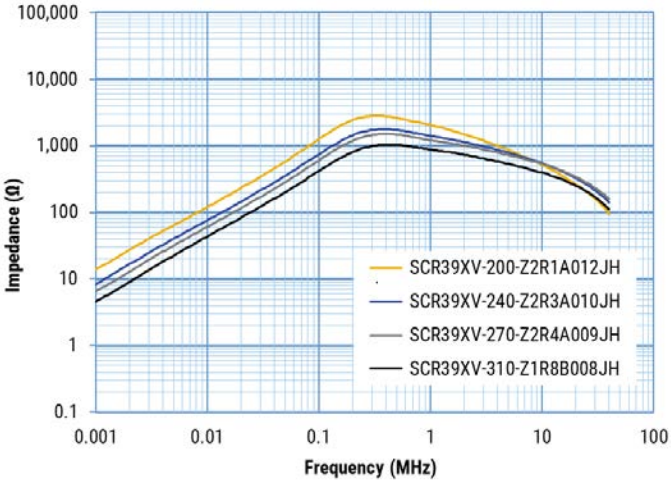
Packaging

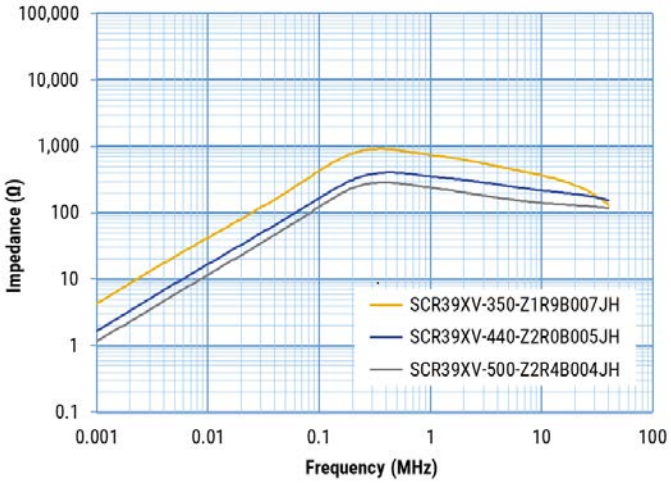
Type	Packaging Type	Pieces Per Box
SCF39XV-Z	Tray	48
SCR39XV-Z		
SCT39XV-Z		

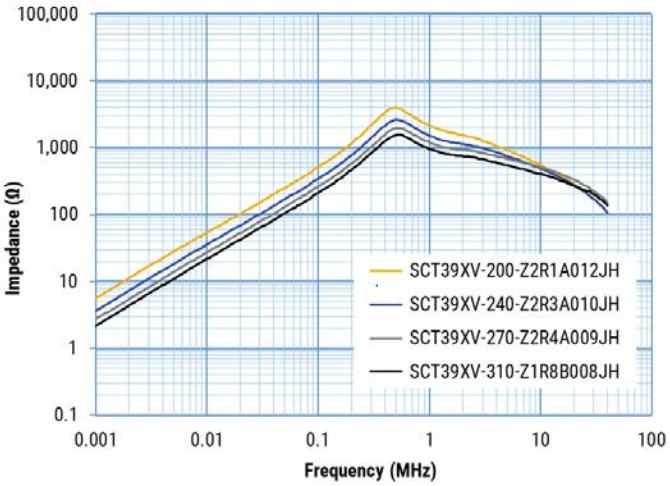
Frequency Characteristics

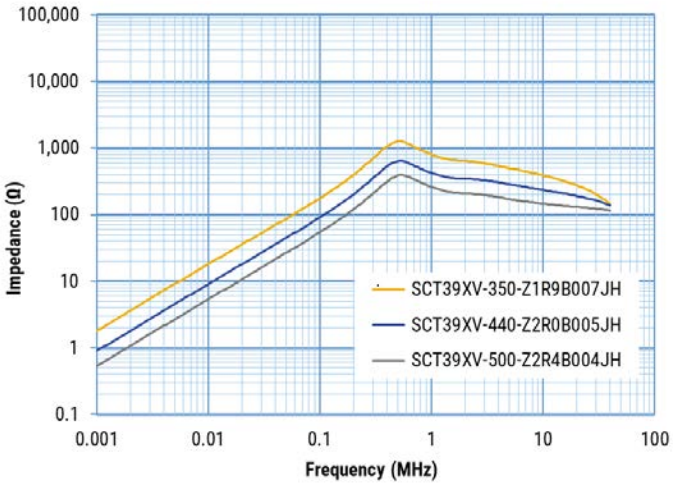








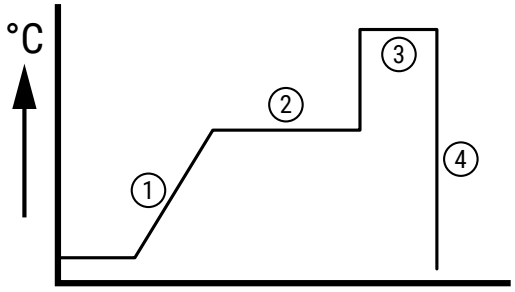




Recommend Solder Condition

Soldering method	Temperature	Soldering time	Number of times
Solder iron	400°C maximum	3 seconds maximum	2 times
Dip soldering	260°C maximum	3 seconds maximum	2 times
Flow soldering	See Below	See Below	See Below

Flow Soldering Condition



① Reserve Temperature
② Preheat Temperature: 80~110°C Time: 120 seconds
③ Soak Temperature: 250°C Time: 8 seconds
④ Cooling

Solder conditions are for reference only and should be confirmed by the customer there is no problem.

Temperature Rise Measuring Method

Connect the cable to the choke by soldering and cool it to room temperature. Also, N1, P1, P2 and P3 are shorted.
In order to prevent temperature changes due to air convections, a rated current is applied to the choke inside the container (container size: about 550 x 450 x 300 mm).

At that time, the temperature of the inner diameter of the choke and the ambient temperature are measured with a thermocouple and recorded with a data logger.

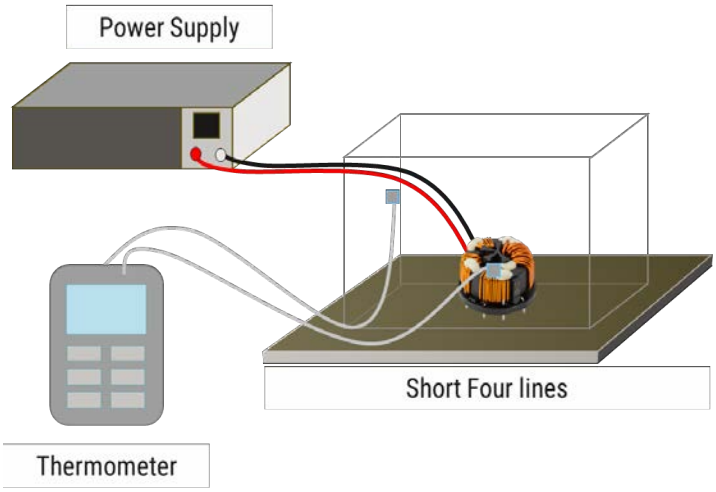


Figure 1 - Measurement system

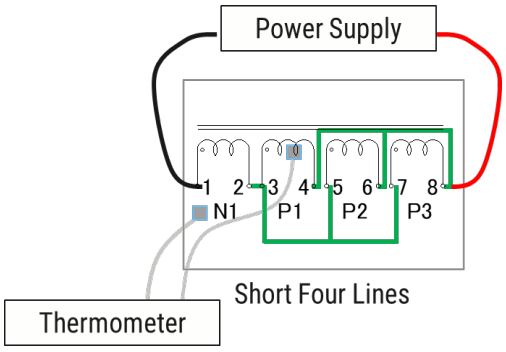


Figure 2 - Schematics

After confirming that the temperature of the choke has stabilized, turn off the power and calculate the temperature rise value from the measured data using the following formula.

$$T = (t_2 - t_{a2}) - (t_1 - t_{a1})$$

And then,

T : Temperature rising (°C)

t_1 : Initial temperature of the choke (°C)

t_2 : Temperature of the choke when current is applied (°C)

t_{a1} : Initial ambient temperature (°C)

t_{a2} : Ambient temperature when current is applied (°C)